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ORIGINAL ARTICLES.

THE REDUCTION IN THE INFANT MORTALITY IN THE CITY OF NEW YORK AND THE AGENCIES WHICH HAVE BEEN INSTRUMENTAL IN BRINGING IT ABOUT.*

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THE infant mortality of any community is in a general way a good indication of the health of that community. A high general mortality is usually an evidence of a very high infant mortality. The infant mortality in all large communities is shockingly high, since from one-tenth to one-third of all infants die during the first year. That such an infant mortality is absolutely unnecessary is proven by the fact, that of babies born with good surroundings and properly cared for not one in a hundred die during the first year. It is manifestly impossible to give the tenement house babies all the care and luxuries that may be enjoyed by the wealthy but this is not necessary in order that they may be under such conditions as will materially reduce their death-rate.

TABLE NO. I.

INFANT MORTALITY. DEATHS IN FIRST YEAR PER THOUSAND INFANTS.

Norway and Sweden.....	106.157
England	154.
France	169.
Prussia	217.
Italy	220.
Hungary and Austria.....	254.258
Bavaria and Württemberg.....	317.329
United States in 1900.....	159.
New York City in 1902.....	158.

In European countries, as is shown by Table No. 1, the infant mortality varies from 106 to 329 a thousand. In the United States according to the last census it was 159.3, while the cities of the country showed a mortality of 184.7. This was a marked improvement over the census of ten years before, 1890, since the total infant mortality of the country had decreased from 246.30 to 159.3 and that of cities from 303.86 to 184.7. In New York State the mortality in 1900 was 159, about the same as for the country and materially more than that of the cities of the United States. The mortality of colored infants is more than twice that of white infants. Thus in the last census it was 397.2 in cities as compared with 180.4 for white children.

The infant mortality of New York City has been very materially reduced in the past twelve

years as is shown by Chart No. 1. The mortality from summer diarrhea in 1902 having been less than half what it was in 1892. Ten years ago the infant mortality of New York City was higher than that of many European countries while now our mortality of 158 is lower than that of most European countries and indeed than that of many smaller cities of this State, as shown by Table No. 2.

TABLE NO. 2.

INFANT MORTALITY IN NEW YORK STATE. DEATHS IN FIRST YEAR PER THOUSAND INFANTS IN 1900.

New York State...	159.	Hudson	200.
Kingston	178.	Poughkeepsie	202.
Auburn	186.	Watertown.....	219.
Binghamton	197.	Troy	229.
Albany	199.	Lansingburg	230.
		New York City.....	174.

In view of this striking reduction in our infant mortality it is important that we should if possible ascertain what these agencies are that have brought it about. It may be asked, is the decline in mortality during the past ten years simply a part of a general decline which has been going on previously? I have not been able to get figures of the infant mortality of New York City before 1891, but have prepared a chart (No. 2) of the general mortality which shows no material decline in mortality between 1883 and 1891, so that this decline is due to influences operative during the past ten years.

An analysis of the figures from which the dotted, dashed and solid lines on Chart No. 1 were constructed, shows that the total infant mortality, represented by the solid line, has decreased from 242 to 158, or about two-thirds, while the deaths during June, July, August and September, represented by the dotted line, have decreased to somewhat more than half, thus showing a much greater reduction than the general infant mortality. The third class of deaths, from infantile diarrhea in summer, represented by the dashed line, however, shows the greatest diminution, the present death-rate being just one-half that of 1901 or 1902. The influences that have acted on the general infant mortality have acted largely through the mortality from summer diarrhea.

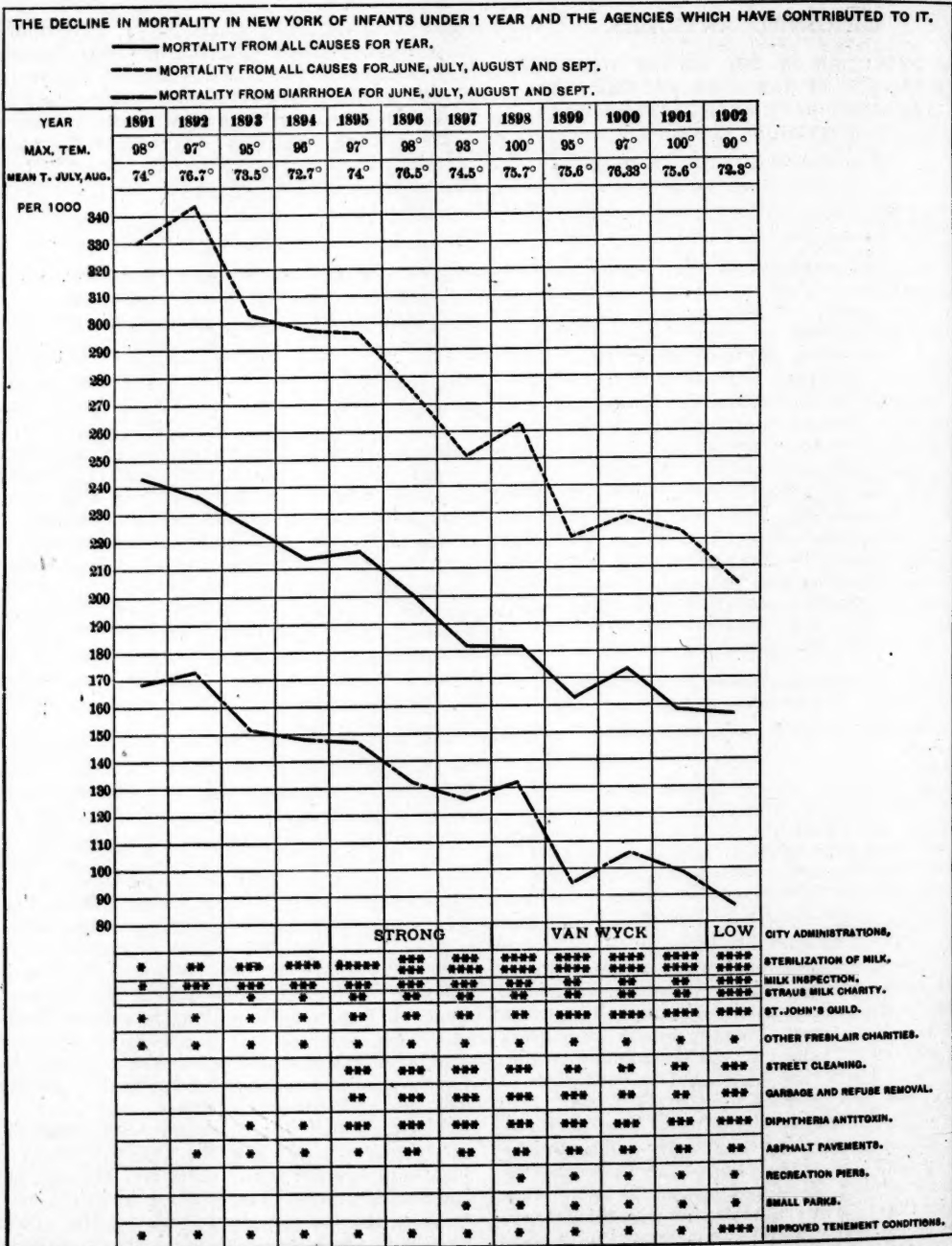
The causes of infant mortality and especially of summer diarrhea may be classified as: (1) Heat and humidity; (2) defective feeding; (3) bad surroundings. The increase in infant mortality in the summer over that in the cooler months is also shown well in the chart showing the infant mortality by months (No. 3). Thus with the beginning of warm weather in June the mortality increases, reaching its height in July and then rapidly falling in August. On studying

* Read before New York County Medical Society, April, 1903.

this chart we are likely to believe that this increased mortality is due to heat and humidity, but why do so few deaths occur in August when

ered and furnished to me through the courtesy of the Department of Health, shows graphically, daily observations of the number of

CHART NO. I.



both of these conditions are usually pronounced? Do all the susceptible infants die in July?

Chart No. 4, constructed from data gath-

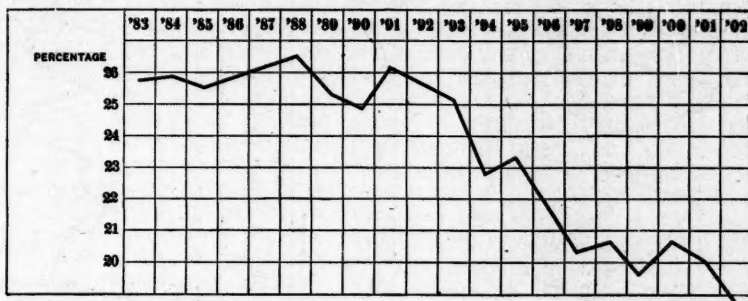
deaths from diarrhea, in New York City in children under two years (solid), the temperature (dotted), and humidity (dashed), during June,

July, August and September, 1902. There is evidently some relation shown between the dotted line, representing temperature, and the solid line, representing deaths, but it is not constant. It should, however, be noted that New York was singularly free from very hot weather during that season. No physician who has visited regularly, in summer, the wards of the babies' hospitals

The third cause of infant mortality, bad surroundings, is significant. A hot, humid day out of doors is bad enough, but in the crowded tenements, with a fire burning in the kitchen of each apartment, the prostrating effect is much greater.

In view of the striking reduction in infant mortality, which has been referred to above and having considered these influences which contribute

CHART NO. 2.



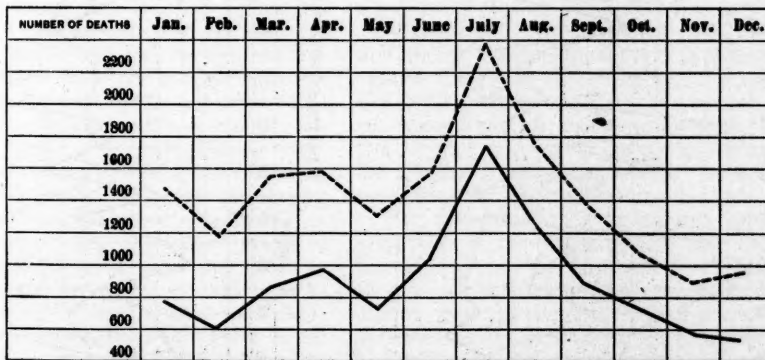
can doubt that heat and humidity have a serious effect on sick babies, a hot summer day usually showing a rise in the temperatures accompanied by an exacerbation of symptoms. While this is an important factor, there is a far more important factor in the food of the babies. Heat and humidity do the babies more harm indirectly by spoiling their food than by direct action on the child itself. This is well shown by the fact that

to the mortality, namely, heat and humidity, defective feeding and bad surroundings, we may now consider the various agencies which have been instrumental in reducing this mortality.

In considering these agencies we may assume that those which furnish to bottle-fed babies a better food than they formerly had are most important while those which improve the environments of the babies and give them fresh air

CHART NO. 3.

Infants Under 1 Year ——— Children Under 5 Years ———

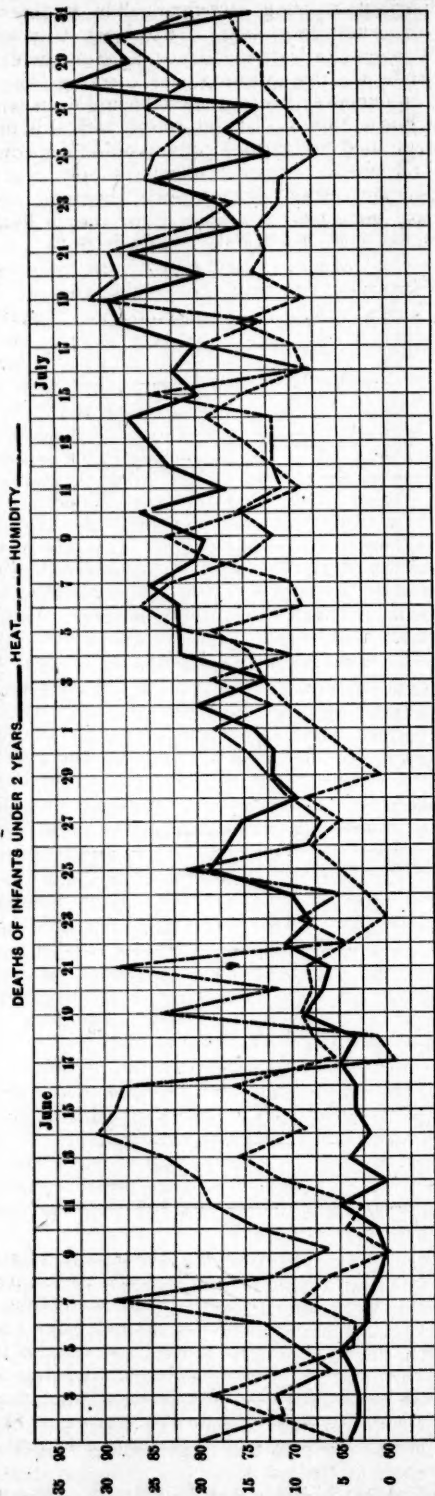


babies that are given nothing but breast milk rarely suffer from diarrhea. It is also well indicated by the chart showing the mortality of certain European countries. For instance, where the babies are breast-fed, as in Norway and Sweden, the mortality is very low, while in Bavaria and Würtemberg, where they are mostly bottle-fed, the mortality is three times as high. Moreover, the babies of New York City fed on the Straus pasteurized milk have been found to do much better than those fed on ordinary milk.

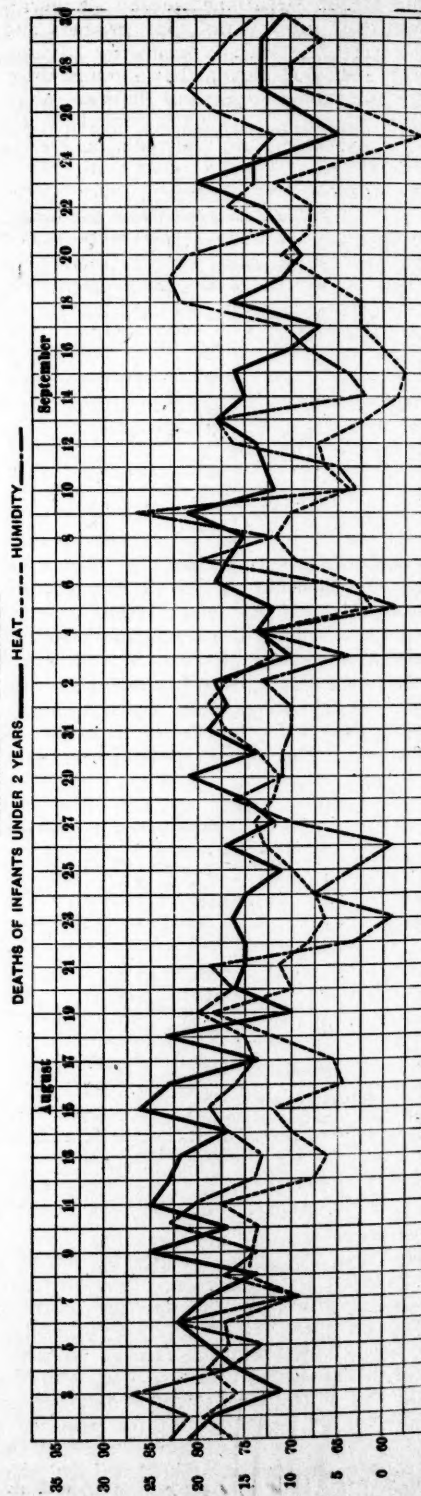
are important contributory factors. In order to bring together these agencies in graphic form I have arranged a chart (No. 1), at the top of which I have noted the highest temperature of the summer as well as the mean temperature for July and August, and it is noteworthy that in these steadily descending mortality curves the abrupt rises are always associated with hot summers. Beneath this large chart I have noted the dates of the last three city administrations. The Strong administration by reforms in street clean-

CHART NO. 4.

DIARRHEAL DISEASES



DIARRHEAL DISEASES



ing, by an intelligent and energetic administration of the Health Department and by inaugurating a system of small parks, play grounds and recreation piers did much to secure the diminution in the death-rate during that administration and during the first two years of the Van Wyck administration.

The most important factor in reducing the infant mortality in New York is evidently not a local influence but one that applies throughout the country, for we have already seen that the infant mortality of the United States has been reduced during the past ten years in the same manner as that of New York. Thus, also, the report of the Board of Health of New Jersey for 1902 shows a marked falling off in the mortality of children under five years from 81.82 per thousand in 1892 to 40.23 in 1898. This reduction was evidently due to the sterilization and pasteurization of milk. It was at about the time that this diminution in infant mortality began that sterilization of milk in the tenements of New York City was generally adopted. So general has it now become that the inspectors of the Rockefeller Institute, when seeking statistics concerning the effect of different sorts of food on the health of babies in the tenements in summer, were able to find scarcely any that were fed on raw milk.

A definite example of the diminution in mortality from pasteurization of milk occurred in the Infants' Hospital on Randall's Island where the mortality in 1897 with raw milk was 44.36 while in 1898 with pasteurized milk it was 19.80. The importance of this factor cannot be too strongly emphasized at the present time when many physicians seem inclined to revert to raw milk.

The control of the city milk supply by the Board of Health may well be cited as an important factor in reducing infant mortality. Although the Board of Health had been active previously in its endeavor to secure good milk its exertions became much more vigorous in 1892, from which date a steady decline in the death rate ensued. It is also interesting to note that in 1899, 1900 and 1901, when there were fewer prosecutions for violations of the ordinances respecting pure milk, a slight increase in the death-rate is recorded while with largely increased activity in 1902, when there were 722 arrests and prosecutions of milk dealers, as compared with 464 in 1901, 460 in 1900, 193 in 1899, there was a diminution in the death-rate to the lowest point in the history of the city. I do not hold that these facts stand to each other absolutely in the relation of cause and effect but they afford at least a very interesting coincidence.

A second important agency in securing suitable nutriment to the bottle-fed babies is the Straus Milk Charity. Organized in 1893, the year in which the decline in death-rate began, with an output of 30,000 bottles it supplied in 1894, 300,000 bottles, in 1895, 600,000 bottles. The output then remained about the same until last year when milk certified by the Milk Commission of this Society was used by them and the demand

reached 1,200,000 bottles, this enormous increase in distribution being accompanied by a diminution in infant mortality. New York City certainly owes to Nathan Straus a great debt of gratitude for inaugurating and carrying out, at his own expense, this most valuable aid to its tenement house babies. In connection with this may be mentioned the various commissions of medical men formed to improve the milk supply, which, by placing certain dairies under hygienic conditions, furnished an example to the ordinary dairyman and set a standard of pure milk.

The next agency in importance in the reduction of infant mortality seems to me the work of the St. John's Guild. This organization supports admirably equipped hospital-boats which make trips down the bay to the south shore of Staten Island where an excellent hospital receives the very sick cases. It was inaugurated in 1875 and furnished then three trips a week, it has, however, steadily extended its work and now supplies 12 trips a week, having two boats in service. This society thus takes away from 13,000 to 18,000 babies every summer and these are carefully fed and bathed during the trips. It is noticeable that the summer of 1899 when its activities were doubled by the services of a second hospital barge, the infant mortality dropped from 262 to 210 a thousand.

This is but one but by far the most complete and extensive of many organizations working in New York City with much the same end in view, such as the Association for Improving the Condition of the Poor, The Children's Aid Society, The Sanitarium for Hebrew Children and the *Tribune* Fresh Air Fund. Altogether probably 35,000 infants are thus taken out of New York City during the hot months of July and August.

A factor of no little importance in diminishing our infant mortality was the appointment by Mayor Strong of Col. Waring as Street Cleaning Commissioner in 1895. He not only cleaned the streets but showed how it should be done. The prompt removal of garbage and refuse under the Strong administration aided in keeping the tenement districts healthful.

The development of diphtheria antitoxin in 1893 and its manufacture and free distribution among the poor by our Board of Health since 1895 which has reduced the mortality from this disease from 40 per cent. to 10 per cent., has diminished infant mortality, especially in the hospitals for infants where prophylactic injections of antitoxin are used.

The gradual paving of our streets with asphalt in place of the stone blocks has made them easier to keep clean and thus added to the healthfulness of the city. This was begun on an extensive scale in 1890 and in 1892 a number of streets on the lower East side were thus improved. During the last year of the Strong administration 1897, more streets were asphalted than ever before. Two-thirds of our asphalt pavements have been laid in the past five years.

The opening up of small parks in the crowded

districts, by the destruction of tenements, began with the Mulberry Bend Park in 1897, the opening of playgrounds for children, through the efforts of the Outdoor Recreation League, began in 1898 and the establishing of the six Recreation Piers beginning with that at East Third Street in 1898, have all helped the babies to obtain fresh and cool air during the summer.

One more influence, the condition of the tenements, is an important one. Overcrowding has for many years been controlled by the Health Department but it was not until the Gilder Tenement House Commission of 1894 began its labors that the evil conditions were generally appreciated. Soon the results of our new tenement house laws and their enforcement by the Tenement House Department should be accompanied by a still lower infant mortality.

In conclusion the following summary may be presented: (1) The infant mortality of all countries is shockingly high and this is shown to be unnecessary by the fact that infants that are well cared for show a very low mortality. (2) The influences that contribute to the high mortality are defective feeding, the active cause, and heat and humidity and bad surroundings as contributory causes. (3) There has been a marked decline in infant mortality during the last ten years in the United States and especially in New York City, due, for the most part, to the decline in mortality from summer diarrhea. (4) This striking decline in infant mortality is due to many agencies. The general adoption of pasteurization and sterilization of milk for infant feeding is by far the most important of these and applies to New York City and the whole of the United States. Other agencies in New York City are the improved city administration, the milk inspection of the Department of Health, the Straus Milk Charity, the fresh air work of St. John's Guild and similar charities, cleaner streets and asphalt pavements, the new small parks, playgrounds and recreation piers, the improved tenements and the use of diphtheria antitoxin.

NEGLECTED PROPHYLACTIC MEASURES AGAINST DISEASES OF THE RESPIRATORY TRACT.*

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It is not my purpose to speak of all the neglected prophylactic measures against diseases of the respiratory tract. I desire merely to emphasize several of the directions in which our efforts of prophylaxis fall lamentably short of our present-day knowledge of the subject.

The first of the points to which I wish to invite your attention is the detrimental influence of dust of whatever kind in causing irritation of the mucous membrane of the respiratory tract, thus paving the way for subsequent infection. It is an

accepted fact that different kinds of dust operate in this manner, and yet there is no intelligent effort made to abate the evil wherever possible. In many industrial pursuits it is well known that the dust-laden atmosphere of the establishment is the primary cause of the prevalence of diseases of the respiratory tract, especially tuberculosis, among the operators. Modern improvements in machinery have done a great deal toward ameliorating the evil, but these alone are insufficient to overcome the detrimental influence of the dust.

In discussing a subject such as this I am well aware that I am going outside the domain of pure medicine into that of Social Hygiene, but I earnestly believe that the medical profession must first be aroused to a sense of the importance of the subject before it will be possible to reach the ears of the industrial world.

Our efforts at ameliorating the evils of this nature, besides insisting upon the introduction of machinery designed to limit the production and to assist in the abstraction of dust from the establishment, should be directed toward regulating the hours of employment in such establishments. Röpke (*Centralblatt f. allgem. Gesundheitspflege*, 1900, Sonder-abdruck), in a comparative study of the prevalence of diseases of the respiratory tract in the metal grinders of Solingen, Germany, and those of Sheffield, England, shows that in spite of the fact that the establishments at Sheffield are far less satisfactory and the arrangements for the removal of dust are poorer than at Solingen, the workmen at Sheffield present better health statistics. These results he attributes to the fact that at Sheffield the workmen are more generally abstainers, engage in athletic sports, live in better houses, and assume a better position at their work. The influence of prolonged sojourn in the open air, associated with athletic sports, is, no doubt, one of the principal factors in bringing about the better conditions of health among the Sheffield grinders. Lack of detailed study in this particular prevents us from making more than general statements upon this point.

Many other industrial pursuits are attended with the production of dust, and observation has shown that the prevalence of diseases of the respiratory tract is far more pronounced among those following such occupations than in those who engage in pursuits unattended by dust formation. Our knowledge of the great hygienic value of pure air as a prophylactic agent against disease suggests one of the most efficient modes of combating the detrimental influences of the dust in such occupations. If we can secure for workmen of this class a shorter working day, and at the same time encourage them in devoting the greater part of their leisure to outdoor exercise, we place them in a better position to overcome the injurious effects of the dust inhaled during their working hours.

Another form of dust which has become a menace to our lives in recent years is that generated in the streets in the larger cities. Since the advent of electric cars and smooth pavements the lives

* Presented to the American Climatological Association, May 14, 1903.

of the inhabitants of cities have been made miserable by the volumes of dust which are constantly formed on the streets. There is no doubt that this modern condition of city streets influences the apparently greater prevalence of diseases of the respiratory tract in recent years. It not only favors the more general dissemination of the specific micro-organisms but it also serves to lower the vitality of the mucous membranes of the respiratory tract and thus facilitates the invasion of these tissues by the bacteria when inhaled subsequently.

The remedies that may be suggested to abate this evil are not very satisfactory, though they may be made effectual to a certain degree. The efforts of the street cleaning departments are evidently too spasmodic to accomplish all that could be accomplished. More efficient cleaning of the streets at a time when they are practically unoccupied—the early morning hours—and the systematic flushing of the pavements will assist in minimizing the evil. Let us hope that in addition to a more efficient street cleaning we may, in the not far distant future, see all lines of transportation placed underneath or above the streets and the employment of draught horses superseded by other, non-dust-producing modes of propulsion.

The second point to which I wish to direct your attention is the great deficiency in the ventilation of so many of our public schools. It is a well-known fact that the constant breathing of air markedly vitiated by the excretions from the lungs of other persons exerts a detrimental influence upon the vital powers of the system. Nevertheless we find many of our public school buildings overcrowded and in consequence the way is opened for the more general distribution of the micro-organisms of disease when brought into such an overcrowded space.

The greater prevalence of such diseases as diphtheria, measles, and scarlatina during the autumn months can be definitely traced to the very intimate association of children in overcrowded and poorly ventilated school-rooms, and to the diminished resistance of their bodies to infection in consequence of the injurious effects of such overcrowding.

We have a general knowledge of the overcrowded condition of the public schools in different places, but, so far as I know, no systematic effort has been made to gather detailed information regarding the ventilation of the public schools except that just published by the State Board of Health of Ohio (1901) for all the schools in cities and towns of that State. This report is most interesting and important, and should be duplicated elsewhere. The tables given in this report show the number of square feet of floor space and the air space for each pupil in a room, as well as the ratio of window area to floor space. The investigation shows that 18 per cent. of the schools contain one or more rooms that fall below the minimum standard of 15 square feet of floor space, and a still greater number (28 per cent.) fall below the minimum standard

of 200 cubic feet of air space, while 75 per cent. of the school buildings have rooms that are deficient in light in that they fall below the standard of a window area of 20 per cent. of that of the floor space.

Conditions such as these are, no doubt, very general throughout the country, since there is no probability that the conditions are worse in Ohio than elsewhere. With conditions such as these prevailing in our public schools it is no wonder that diseases of the respiratory tract are so readily disseminated amongst school children. Moreover, deficient ventilation and lighting are potent agencies in undermining the vitality of the bodies of growing children. It is of the greatest importance that the children of our public schools be protected from all detrimental agencies possible.

Among the prophylactic measures against diseases of the respiratory tract the two measures which appear to require our most urgent attention are the prevention of the formation of dust and the regulation of deficiency in ventilation and lighting of our public schools. The neglect of enforcement of sanitary laws in these two particulars is, no doubt, the cause for untold suffering. The regulation of sanitary questions of the magnitude of the ones under discussion must necessarily fall upon the State. The educated physician can do much, however, in creating public sentiment and directing it into proper channels of action.

PUERPERAL INSANITY.*

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Puerperal insanity is a generic term used to include all cases of mental derangement incident to pregnancy and its sequelæ. When we remember the marked perturbation of the nervous system, even in some cases of pubescence, adolescence or climacteric periods, much less normal pregnancy, from reflex causes, from disorders of digestion and from the depravation of the blood, it is not strange that the same conditions which give rise to moral perverseness, to the loss of memory, to hysteria, or hypochondriasis should likewise prepare the way for the outbreak of the more pronounced forms of mental derangement.

I shall not dwell on the symptoms and differential diagnosis of mania and melancholia, per se, but shall speak of the relations of insanity mostly incident to pregnancy and its sequelæ, because it is too tiresome to treat of them here when we can find an exhaustive description of them in any standard work on insanity.

Puerperal insanity is conveniently subdivided into three classes: (1) Insanity of pregnancy, which is usually melancholia; (2) puerperal insanity proper, which comes on in a limited period after delivery and is usually in the form of mania, and (3) insanity of lactation, which is mostly melancholia.

* Read before the Medical Ass'n of Georgia, at Columbus, Ga.

The form of puerperal insanity may be mania, or melancholia, and sometimes these forms pass into dementia. Mania is almost always the form of insanity that occurs in puerperal insanity proper; melancholia is the form generally met with in the first and third classes, and if dementia occurs it is usually in these classes. Mania occurs more frequently than the others. The percentage of the different classes are: Insanity of pregnancy, 20 per cent.; puerperal insanity proper, 50 per cent. and insanity of lactation, 30 per cent.

Extensive collected statistics from various institutions devoted to the treatment of insanity claim that 7.1 per cent. of all cases of insanity of females are of puerperal origin, and that the disease develops during the child-bearing process.

As to the frequency of puerperal insanity in relation to the number of cases confined writers and present statistics vary considerably. My experience in the lying-in hospitals and insane asylums while in Baltimore and since I have been practising medicine, prove that we seldom meet with a case of puerperal insanity, although I met with two cases in 1902 and one in 1903. Summing up the tabulated cases of the best authors and writers and from latest statistics, it is sufficient to say that one woman out of every four hundred who is confined becomes insane. Dr. Williams, at Johns Hopkins, claims that the proportion is one out of 650.

There is a form of insanity not considered in the other classes known as transient mania during delivery. This is a peculiar form of mental derangement sometimes observed during labor and called temporary insanity. It is more accurately described as a kind of acute delirium, produced in the latter stages of labor by the intensity of the suffering caused by pains. It is most apt to occur as the head is passing through the os uteri, or at a later period, during the expulsion of the child. It may consist of merely a loss of control over the mind, during which the patient, unless carefully watched, might in her agony seriously injure herself or her child. Sometimes it produces acute hallucinations, as in the case described by Tarnier, in which the patient fancied she saw a specter standing at the foot of the bed, which she made violent efforts to drive away. This kind of mania, if it may be so called, is merely transitory in its character and disappears as soon as the labor is over. From a medicolegal point of view it may be of importance, as it has been held by some that in certain cases of infanticide the mother has destroyed the child when in this state of transient frenzy and when she was irresponsible for her acts. In the treatment of this variety of delirium one must of course try to lessen the intensity of the suffering, and it is in such cases that chloroform should be administered. After this temporary insanity passes off, we should keep the patient quiet for some time.

Class 1.—Insanity of pregnancy is without doubt the least of all three forms. The intense mental depression, which in many women accompanies pregnancy, and causes the patient to take

a despondent view of her condition, and to look forward to the result of her labor with the most gloomy apprehension, seems often to be only a lesser degree of the actual mental derangement which is occasionally met. In many the attack of insanity can be traced as developing itself out of the ordinary hypochondriasis of pregnancy. A larger proportion of cases occurs in primiparæ than in multiparæ, a fact no doubt that depends on the greater dread and apprehension experienced by women who are pregnant for the first time, especially if not young. The period of pregnancy at which mental derangement shows itself varies. Most generally it is at the end of the third or the beginning of the fourth month.

We should not confound aggravated hypochondriasis with insanity of pregnancy as the former usually lessens after the third month, while the latter only begins after that date. Melancholia in insanity of pregnancy does not differ much from ordinary melancholia, although the suicidal tendency is often strongly and very generally developed, and moral perversions are not uncommonly observed.

Sometimes there is a tendency to dipsomania in the early months, which may be an exaggeration of the depraved appetite or morbid cravings, so commonly observed in pregnant women, just as melancholia may be a further development of lowness of spirit. Sometimes kleptomania is very characteristic of the disease.

Prognosis.—The prognosis may be said to be, on the whole, favorable, although there is little hope of a cure until after the termination of pregnancy.

Causes.—By far the most prolific cause of insanity of pregnancy is an hereditary predisposition to insanity that exists, and the event of pregnancy acting simply as the spark that fires the mine. The morbid dread of pregnancy aids in its causation. Besides hereditary predispositions there are other neuroses that have important influence in the causation, such as family history of epilepsy, drunkenness or hysteria. Anemia, which comes on gradually, has an effect in producing it.

The most recent theories show and claim that toxemia of pregnancy or a manifestation of auto-intoxication play an important part and claim that the toxemia is caused by toxins produced in the bodies of mother and child, and retained because of a lack of excretion or by incomplete metabolism or by both. These toxins may be the result of chemical decomposition of food and the waste material of tissue change largely increased by pregnancy. The insanity may be caused by an as yet unknown group of toxins which may exist in the body during the period of gestation.

Puerperal Insanity Proper.—True puerperal insanity has always attracted much attention from obstetricians, often to the exclusion of other forms of mental disturbance connected with the puerperal state. Puerperal insanity proper is the most interesting part of the subject. We may define it to be that form of insanity which comes

on within a limited period after delivery, and which is intimately connected with that period, because the mental disturbance which is usually acute confusional insanity is due to toxemic infection. Mania is generally the form of insanity met with, but by no means is it the only kind of insanity observed, for there are a considerable number, being well-marked examples of melancholia. There are also some peculiarities as to the period at which these varieties of insanity show themselves, which, taken into consideration and in connection with certain facts in their etiology, justify us in drawing a closer line of demarcation between them. My experience and the authority of the best writers lead me to say that all cases of acute mania come on within eight days after delivery and that all cases of melancholia develop after that period.

Etiology.—It is pretty generally admitted by all alienist physicians that hereditary tendencies form one of the strongest predisposing causes of mental disturbance in the puerperal state. In a large proportion of cases circumstances producing debility and exhaustion or mental depression have preceded the attack. Preceded by post-partum hemorrhage, severe and complicated labor, or they may have been weakened by over-frequent pregnancies, or by lactation during the early months of pregnancy. Morbid dread during pregnancy is sufficient to produce insanity before delivery, may develop into puerperal insanity after labor.

Shame and fear of exposure in unmarried women not infrequently lead to the disease. The anemia produced by post-partum hemorrhage is a potent factor in producing puerperal insanity. Mental impressions may be the determining cause in predisposed persons. The age of the patient has some influence and there seems to be a greater liability, at advanced ages especially, when such women are pregnant for the first time. The symptoms are intensified by disturbances of the abdominal or pelvic organs. The most recent theories and investigations attribute the causation of the disease to some morbid condition of the blood. The possibility and probability of an acute form of puerperal insanity, coming on shortly after delivery, being dependent on some form of septicemia is one that deserves most careful consideration and investigation on this subject.

There are several theories advanced as to the dependence of the disease being due to a morbid condition of the blood. The theory of uremic blood-poisoning causing puerperal insanity was originated by Sir James Simpson and supported by Dr. Donkin, who, after finding albumin in the urine of several patients, claimed that it might properly indicate the presence in the blood of certain urinary constituents which might have determined the attack, much in the same way as in eclampsia; that the acute dangerous class of cases are examples of uremic blood-poisoning of which the mania, rapid pulse, and other constitutional symptoms are merely the phenomena, and that

the affection therefore, should be termed uremic, or renal puerperal mania in contradistinction to the other forms of the disease. They also claim that the immediate poisoning may be carbonate of ammonia, resulting from the decomposition of urea retained in the blood. The theory that hepatic insufficiency causes puerperal insanity originated and is supported by Budin, Penard and Dorland. Dorland claims that puerperal insanity is due to hepatic insufficiency and that the kidneys are only secondarily affected and that the morbid condition of toxic properties of the blood is not a disease of the kidneys or insufficiency of their functions. The tendency to-day is to ascribe the morbid condition of the blood and albuminuria to one and the same cause, namely, the presence in the blood of a certain toxin of unknown origin and constitution. The frequency of marked hepatic lesions in autopsies on puerperal women points to the probability of the toxin being liberated in the liver. Puerperal infection or toxemic infection is the direct cause of puerperal insanity, based on the fact that puerperal insanity occurs in the great majority of cases within the first ten days after delivery, the same period during which puerperal infection usually occurs. It is generally accompanied by elevation of temperature and other evidences of febrile disease. The clinical form in which puerperal insanity manifests itself is in most of cases that of acute delirious or confusional mania, closely resembling febrile delirium. The death-rate is much higher than in simple mania, death occurring from exhaustion usually with high temperature and rapid pulse. Post-mortem examinations, although apparently infrequent in either case, have shown grave involvement of the pelvic organs. Examinations of the pelvic organs during life show lacerations of the perineum and cervix uteri, which are the channels of infection in the puerperal woman. Puerperal insanity was a common complication of the puerperium in former times, but since the introduction of aseptic methods in midwifery there is a reduction of one-half of its incidence. Sometimes there are secondary conditions found, such as intrapelvic inflammations and consequent abnormal locations, fixations and congestion of the uterus, tubes and ovaries. It should be borne in mind that in each individual case many factors are indissolubly associated, the patient's mental breakdown being the result of several complex conditions, each reacting upon and intensifying the other. I think that the renal and hepatic theories are fallacies, although they may have some weight in producing the disease, because effects of faulty elimination of secretion altered in quantity and quality play an important rôle in the production of the unstable nervous condition of pregnant women. So we find the liver unable to perform the work thrust upon it and failure of skin and kidneys, with or without albuminuria, all of which certainly can and do induce faulty nutrition of the brain. There are many facts, as statistics of recent years show, to support the

belief that I have advocated that sepsis is by far the most important cause of puerperal forms of insanity. But it is strange that no one has yet ventured to assert that all puerperal cases are due to intoxication from either bacteria, or toxemic organ compound. In short, I venture to say that the *hereditary taint and morbid predisposition are the true causes of the disease, the puerperal condition being its immediate and exciting cause.*

Recent advances in bacteriology warrant the opinion that some day proof will be abundant of the universal belief that either toxemic or septic infection is a primary factor in all cases of psychosis of childbirth.

In no class of cases are gynecological investigations of more importance than in the study of the causation of puerperal insanity.

Diagnosis.—The diagnosis of puerperal insanity, cannot be made out from the symptoms. It is not a special variety of insanity symptomatically, but etiologically.

Prognosis.—The prognosis is favorable; 75 to 80 per cent. recover, but a large proportion die of exhaustion. In no class of cases of insanity is the prognosis so favorable as those of puerperal origin. The number of previous pregnancies seems to have little influence, but the age seems of more importance. The younger the patient, the better apparently is the prognosis. The disease may resolve itself into a consideration of immediate risk to life and of the chances of ultimate restoration of the mental faculties. It is an old aphorism, "That mania is more dangerous to life and melancholia to reason." Extreme rapidity of the pulse is indicative of a fatal tendency. If pulse be 120, conditions are grave, but as long as the pulse remains below 100 there is no immediate danger. Should there be development of phlegmasia dolens, the prognosis is rendered exceedingly grave. The most dangerous class of cases are those attended with some inflammatory complication with marked elevation of the temperature.

Duration.—The duration of the disease varies considerably; patients usually getting well in three months; but melancholia generally lasts longer than mania. When the patient gets well, it often happens that her recollection of the events occurring during her illness is lost; at other times the delusions from which she suffered remain.

Lactational Insanity.—This is a mental disturbance occurring during the period of lactation, usually coming on from six weeks to ten months after labor. This form of insanity is generally melancholia, and occasionally you meet with confusional insanity, which is much more transient than true puerperal insanity. There seems, however, to be more risk of the insanity becoming permanent than in other forms. Sometimes the melancholia degenerates into dementia and the patient becomes hopelessly insane.

Etiology.—Hereditary taint is an important factor in producing this form of insanity as in the other forms. Prolonged or excessive lactation is considered the chief cause in producing

lactational insanity. Careful inquiry, however, shows that certain conditions favoring toxemic infection are often present, as a mammitis, or mammary abscess sometimes precedes the mental disturbance. Defective uterine involution is considered as a factor. Lacerated cervix and endometritis have been found present in some cases. Its dependence on causes producing anemia and exhaustion plays an important part. Retained placenta, I believe, has force in producing it, as in a case of lactational insanity which I treated I found patient with discharge and retained placenta six weeks after labor. The toxemic effects from the retained placenta in this case giving rise to slight febrile condition proves that toxemic conditions are important factors in causing lactational insanity.

Diagnosis.—The occurrence of confusional insanity during the nursing period is the only diagnostic feature. There is nothing distinctive in the symptomatology. Three to four per cent. of all cases of insanity in women occurs during the nursing period.

Prognosis.—The prognosis is moderately favorable, from 40 to 50 per cent. recover. The danger to life is not great if the cause producing debility be recognized and at once removed.

Mania and Melancholia.—The symptoms of these forms of insanity are practically the same as in the non-pregnant state, consequently I will dwell only on the symptoms peculiar and incident to puerperal insanity, for you can find very extensive descriptions of the symptoms in almost any standard work on insanity. Mania is more frequent than melancholia and occurs generally in puerperal insanity proper. This disease usually comes on in the first week of the lying-in period. It is almost in all, if not in all cases related to certain well-known symptoms of puerperal sepsis, fever nearly always being present. There may be prodromal symptoms, although they usually are not well marked. These consist in either depression, irritability or emotional instability. The outbreak usually begins with excitement, rapidly ending in incoherence. The usual feelings are proverbial. The patient may have attacks of violence, during which attempts are made on the life of the husband, the newly-born babe, or other children, if any.

These symptoms often have a religious basis; at other times they are based on delusions of jealousy. Usually the hallucinations and delusions of the patient are of a sexual nature and character. The most refined women will surpass the imagination of the most degraded in their obscenity and vulgarity of language and actions. The eyes are bright and face pallid, pulse quick, tongue dry and furred, bowels mostly constipated, urine high colored and scanty and appetite uncertain and abnormal, attempting to eat bedclothes, etc.; they also try to inflict bodily injuries on themselves, gouging at their eyes, etc. They seem dissatisfied with their physicians and nurses. They will often yield to suggestions and treatment of the physician on his first visit but

no longer, and then beg for new physicians. I experienced this in treating one case in which the patient became dissatisfied and refused to follow any of my suggestions or take a dose of my medicine. Another physician was called in, after his first visit he was treated likewise and the third physician was called, and after his first visit he received like treatment. Motor excitement is common. Some desire to remove their clothing and expose their persons while in others it is perhaps due to hallucinations of common sensation, rendering the weight or pressure of the clothing unbearable. The patient gets apathetic; there may be alternations of excitement and depression with incoherence as a dominant symptom, lasting for years. It may end in secondary dementia.

Melancholia.—This disease is most commonly in uterogestation and lactational insanity, and is often preceded by cephalalgia, tinnitus aurium, and flashes of light before the eyes, and other indications of debility when it comes on during lactation. But when during uterogestation, the accompanying delusions are generally exaggerations of the anxieties and whims of pregnancy. The advent of melancholia is more gradual. It may commence with depression of spirit without any adequate cause, associated with insomnia, disturbed digestion, headache and other indications of bodily derangement. Such symptoms, showing themselves in women who have been nursing for some length of time, or in whom any other evident cause of exhaustion exists, should never pass unnoticed. Soon the signs of mental depression increase and positive delusions show themselves. These may vary much in their amount, but they are all more or less of the same type, and very often of a religious character. I had one case in which insanity began and ended with religious delusions and hallucinations. The amount of constitutional disturbance varies much. In some cases, which resemble in character those of mania, there is considerable excitement, rapid pulse, furred tongue and much restlessness. Acute cases of melancholia coming on during puerperal state most often assume this form. In others there are less of these general symptoms; the patient sits for hours without speaking or moving; but there is not much excitement and this is the form most characteristic of insanity of lactation. There is always a strong tendency to suicide; which should never be forgotten in melancholia cases, as this may develop in an instant, and that a moment's carelessness on the part of the attendant may lead to disastrous results.

Treatment.—I will give the treatment of mania and melancholia mostly relative to puerperal origin, as we can find a descriptive treatment in nearly every work on insanity for general mania and melancholia. The indications for treatment are to check profuse, exhausting discharge; to support the patient's strength and to insure perfect quiet. With the first signs of trouble the child should be taken from its mother's breast and

sight; liquid food should be given at frequent intervals, care should be taken to keep the rectum and bladder empty, the room should be darkened and its temperature should be regulated. We must calm the excitement and give rest to the brain. In acute mania there are three important things to do: The patient must have a sufficient quantity of suitable food and sleep; we must seek and remove the cause, bearing in mind that puerperal insanity is an infectious psychosis, the local source of infection should be sought out and removed, if possible. In some cases there is simple sapremia due to absorption of septic material from the birth canal. In others there is septicemia. In short, the treatment is about the same as in any case of puerperal infection. The streptococcic serum and intravenous infusion of formalin are used and have proved to be of no benefit, so far. In cases of purulent endometritis or retained placenta, curetting of the interior of the uterus and repeated irrigations will be required. Persons not needed in the sick-room should be excluded.

If the patient is poor and strength will warrant it, she will be best cared for in an asylum. Whenever possible, patient should be treated at home with trained nurses and much of our success in treatment depends on the nurses and especially their experience with the insane. We should have day and night nurses. The fact of having been in an asylum fixes a certain stigma upon patients, so let even this make us conservative in our orders. Every endeavor should be made to induce the patient to take plenty of nourishment to remedy the defects of the excessive waste of tissue and support her strength until the disease abates. If there is no febrile condition, give solid food as long as is possible, but if any febrile condition is present give only liquid food, as it will be better. Give the liquid food frequently and in small quantities. If patient refuses to take food, give it to them forcibly. Alcoholic stimulants should be given to the fullest extent, when well borne. In the early stages, or in mania, or in the excitant stages of melancholia the patient is better off without these stimulants, but under other circumstances they are to be given. At the onset a good purgation is beneficial, after that purgatives are harmful, but the liver and bowels should be kept in good condition by giving mild laxatives, such as a few grains of calomel, cascara sagrada, or sodium phosphate. When a diuretic is indicated give potassium acetate and infusion digitalis. If the skin is harsh and dry daily sponging with alcohol and warm water is very beneficial and it will aid to calm the excitement of patient. The heart should be watched and its strength maintained by small and repeated doses of digitalis, so as to keep the brain well nourished. Opiates should not be given unless in severe pain, as in cellulitis, as they have adverse action on the secretions. To produce sleep and calm the patient, which necessarily forms one of the most important points in treatment, of all remedies chloral hydrate stands first, and given

with potassium bromide its hypnotic action is increased. Trional is a very reliable drug for maniacal excitement and insomnia when given in doses of 30 grs. every two to four hours, to produce sleep and quiet the patient, but heart and bowels must be watched. I have found nothing to control the excitement better than hyoscine hydrobromate, given hypodermically in dose from $\frac{1}{150}$ to $\frac{1}{60}$, repeated once or twice daily, watching its effects. When the patient reaches convalescence she should have a good tonic, change of air and scenery and be taken to a healthy and quiet location. Great care should be exercised in allowing the visits of relatives and friends. There should be secured for the patient, rest, sleep, nutritious food, daily evacuation of the bowels, and little by little she should be brought back once more to old habits and the responsibilities of existence.

THE ADAPTABILITY OF WESTERN TEXAS CLIMATE FOR THE TREATMENT OF CONSUMPTIVES.

BY C. H. WILKINSON, M.D.,
OF GALVESTON, TEXAS.

DESIROUS of adding my quota of experience to a cause which I consider more worthy of consideration than any other before the medical profession of our country to-day, namely, the proper caring for our American consumptives, and believing that my many years of observation upon the subject have borne some practical results, so far as benefiting these cases is concerned, I submit this article, trusting that it may fall before the eyes of some who may be thereby guided to a climate which certainly will be beneficial to all who resort to it in the early stage of phthisis.

It might be well to premise my remarks by the broad assertion that there is to-day, probably, no known specific for consumption. A victim once enlisted in the army of the Great White Plague has a battle to fight which almost invariably ends in his defeat, if he trusts alone for his cure to medicine. No reliance, therefore, can be placed in "vaunted cures," nor in any of the horde of "boasted methods" that flaunt from the columns of our American papers every day.

Not that medicine, however, is useless in consumption; on the contrary, at certain times and under certain conditions it is useful as an auxiliary to more natural and important methods of dealing with this disorder, and he who attempts to steer his cases through consumption, without the occasional aid of medicine, commits an error.

Turning away then in search of relief, from our Pharmacopeia, and from an exclusive medical system of treatment for such cases the important question which confronts us at the outset of our efforts is, What are we to do with these cases? Fortunately, nature has placed within our reach, and right at our doors, and practically accessible to all, a drugless remedy which answers the question and which can be relied upon, if

taken in time, for the cure of human tuberculosis. That drugless remedy is climate.

Western Texas.—Without consuming space upon the climates of New Mexico, Arizona and Colorado, the three most famous territories in America, and justly so, for the relief of consumptives, or upon other less favored localities, the writer simply desires to introduce his adopted State to the consideration of the medical profession of this country, with the sole object in view of pressing her claim for recognition as one of the most favored spots on earth, for the sure and prompt eradication of phthisis pulmonalis, if such cases take advantage of her climate in the early stage of that disease. Western Texas, that portion of the great Lone Star State especially adapted for the cure of phthisis, and of which this article is particularly descriptive, comprises all that territory situated between the Colorado River on the east, and the Rio Grande on the west; the thirty-second parallel of north latitude on the north, and the Gulf of Mexico on the south. In extent it is larger than all New England, and is easily capable of accommodating over 10,000,000 human inhabitants.

The surface of this country is mainly undulating, except along its southern boundary, which is level, and rises from an elevation of 500 feet in the east to one of 5,000 feet or higher, along its western border. Within the limits of the country just described, it is safe to say, can be found the natural sanitarium of the world. The winters here are comparatively short and mild, while the summer heat rarely if ever attains a degree to be oppressive, and summer nights are always cool and delightful.

Three or four important lines of railroads traverse Western Texas, so that most portions of the country can easily be reached by health seekers, and along these lines the luxuries of life can nearly always be found, if proper effort is made to procure them. Moreover an abundance of pure water can readily be obtained, as likewise an abundance of nutritious foods.

Cities, towns and villages, to the number of a hundred or more, are interspersed all through this region, and the residents thereof are, in the main, quiet, peaceable and intelligent. A few years ago nearly all of Western Texas was one vast cattle ranch, or, more correctly speaking, a continuous line of them; but to-day most of these pastures have been converted into beautiful farms, while the cowboy and the Indian have retreated before the school teacher and the industrious farmer.

The Climate.—As stated above, the winters and summers of Western Texas are comparatively mild, the degrees of heat and cold never attaining the extremes observed in many other localities resorted to by health seekers, consequently invalids are enabled to be in the open air for a longer period of time than perhaps in any other State in the Union. A remarkable peculiarity of the atmosphere in Western Texas is shown by the fact that, in the center of this

health district in midsummer, fresh meat suspended in the open air will remain there indefinitely without tainting; and incised wounds under any sort of care, rarely ever suppurate. In other words the atmosphere here is inimicable to pyogenic germs, and in this property its antibacillary qualities no doubt reside. It has been asserted by authorities on phthisis that there is nothing specific in any atmosphere for the disease, but in the light of recently discovered facts this statement to the writer seems questionable. The climate of Western Texas will restore to health 85 to 90 per cent. of all phthisical cases consigned to its care in their incipency; and this, too, with so much certainty that climate in this instance could properly be styled specific.

Nor are its benefits confined to incipient cases alone, since hundreds of human beings to-day are enjoying excellent health in Western Texas, who were carried there upon their beds in search of health many years ago.

The Best Places in Western Texas for Consumptives.—So large is the territory under consideration that a description of the various resorts to be found there would be out of the question in an article like this, therefore only brief mention can be made of some of them, except of one.

San Angelo, at the western terminus of the G. C. & S. F. R. R. and Llano on the Austin Branch of the Central Pacific, are excellent and famous health resorts, situated respectively about 1,800 and 1,000 feet above tide water and each quite accessible by rail.

Marfa and Fort Davis are further west, and very much higher, being 5,000 feet above the sea. These are along the line of the Southern Pacific Railroad, but are not so easily reached as the first two mentioned by reason of their distance. Perhaps the best locality for consumptives in all Texas, if not the best adapted place in the world for such cases, is at Comfort. This little German village of 600 inhabitants is situated in Kendall County, on the San Antonio & Aransas Pass Railroad, just 52 miles northwest of San Antonio. It is about 1,700 feet above sea level, and is surrounded by hills and mountains of considerable magnitude. Along the south side of the village runs the Guadalupe, a most beautiful stream of clear water, while the whole face of creation around is dotted with elegantly kept farms teeming with luxuriant verdure nearly all the year round.

The air here is pure, elevated, crisp and dry, and for the most of the year it is warm, thereby constituting an ideal lung food. This atmosphere is inimicable to putrefaction, and the bacilli of tuberculosis rapidly die out under its strong influence. Here one never feels fatigue, and therefore "that tired feeling" so often complained of by denizens of lower districts is never heard of.

Comfort, being only fifty-two miles from San Antonio, and on a railroad, is quite easily reached from that city. There are some excellent physicians located here, and nearly any luxury desired

can be obtained without delay. It is at Comfort, Texas, where Camp Reliance is located, and where invalids, both male and female, reside in tents all the year round for the cure of their disease, relying on the "open air" method.

How to Reach Comfort, Etc.—Probably the first question suggested to the reader of this article would be: First, How can one reach Comfort? Second, What would the round trip cost? Third, How long should one remain in that climate before he could safely consider himself cured? Fourth, What accommodations are obtainable out there? And, fifth, What vicissitudes would one have to undergo while remaining out in Texas?

These are all pertinent and practical questions, and experience shows that they are the usual inquiries made by prospective health seekers from Texas physicians. The writer can only answer the first and second inquiry by taking San Antonio as the point of departure for the invalid.

First, as is well known, this last-named city is the great Mecca of the southwest for consumptives. Here they annually flock by the hundreds, and from San Antonio many of them scatter out in all directions in search of better places, as information directs them. There are four great lines of railway running into San Antonio, and all of them transport invalids to this section. These lines are the Southern Pacific, the San Antonio & Aransas Pass, the Missouri, Kansas & Texas, and the Great Northern railroads. Take whichever route is most conveniently reached; though the S. A. & A. P. R. R. has established a route out of Chicago via the M., K. & T. R. R., by which passengers can go through to San Antonio without change of train, a great advantage to the invalid traveler. From San Antonio your trip of fifty-two miles is over the S. & A. P. R. R., familiarly called the S. A. P., a beautiful and picturesque route, and the fare is \$1.55 each way.

Second, At Comfort or anywhere around in the neighborhood good accommodations can be obtained in hotel, on ranches or in tents, at from \$25 to \$30 a month, and your stay in this country should be from four to six months, according to the severity of your case, in order to secure permanent benefits therefrom. Thus, in mild cases, the round trip from San Antonio to Comfort and back should cost you not exceeding \$200 for a six months' trip, including everything. As a matter of course, severer cases require longer stay, while those bedridden who go should expect to remain there a year, or even longer. In answer to Question 5 the writer will state that there are no vicissitudes in store for invalids who go to Comfort, over and above occasional inconveniences common to all travelers. The climate there is nearly perfect; the people (nearly all German) are quiet, honest and industrious, and sociable, and it is this very character of the people and quality of the atmosphere that make Comfort the ideal place for invalids to go to.

There is also an abundance of nutritious food to be found in that country, such as milk, eggs,

butter, fresh meats and vegetables,, while game and fish abound plentifully nearby.

Finally, the invalid is within "hailing distance" of civilization, a most important point to be considered in treating these cases, telephone and short railway connections being had with San Antonio, the largest city in the southwest and the most attractive one in the State.

The proximity to so well a supplied base as San Antonio, with its luxuries and attractions, along with all the natural advantages just enumerated, make the little village of Comfort, in the opinion of the writer, far ahead of any place in Texas, if in fact it is not the superior of any to be found in all this country, as a resort for the proper accommodation and treatment of consumptive cases.

Since writing the above, it is learned that a station has been established at Camp Reliance, on the S. & A. P. R. R., just 50 miles from San Antonio, and that tourists are finding this an excellent resort to stop at. The writer would be pleased to give further information to anyone who might desire such upon the climate and resorts of Western Texas.

**PERINEAL PROSTATECTOMY WITHOUT OPENING
URETHRA OR BLADDER—UNSATISFACTORY
RESULT—SUBSEQUENT PERINEAL CAU-
TERIZATION OF EN COLLARETTE
NARROWING OF BLADDER ORI-
FICE—RECOVERY.**

BY JOSEPH RILUS EASTMAN, M.D.,
OF INDIANAPOLIS, IND.

THE case of prostatic hypertrophy described briefly in the following report concerned an attorney sixty-nine years of age. He was below medium in stature, rotund and phlegmatic. His life in the nature of his calling had been sedentary, and for many years he had drunk alcoholic beverages in moderation. He had not been a voluptuary. Constipation had never annoyed him in a notable degree, but an examination of the rectal mucosa disclosed general venous congestion and varicosities. There were no marked evidences of general sclerosis. There was no arcus senilis. The arteries were soft.

The symptoms recited at the writer's first examination and which had begun to appear four years previously, were the classical ones, dependent upon interference with the function of micturition. Undue frequency of micturition had increased until the man was disturbed 12 or 15 times during the night, mostly during the after part of the night. Micturition was hesitating, interrupted and followed by dribbling, the urine falling directly to the ground, not describing the normal parabolic curve.

The amount of residual urine varied between six and eight ounces. There had never been complete retention. Pyuria, slight hematuria, muscular spasm and characteristic pain were present. Bacteria, including *Bacilli coli* and *Staphylococci*

were found in the centrifuged urine. Ammoniacal fermentation had begun. The odor of the urine was very pungent. There was present a trace of albumin. The urine also contained hyaline casts and much bladder epithelium. The reaction was alkaline, and the specific gravity hung about 1.024. There was slight intermittent polyuria.

The withdrawal of the urine through the catheter elicited the assurance that the bladder had not lost its expelling power. The posterior urethra was found to be lengthened, the distance from the anterior layer of the triangular ligament to the bladder orifice having measured $3\frac{1}{4}$ inches.

Most small instruments entered the bladder, but not without difficulty, the handles being deflected slightly toward the right. The Coude and Bicoude catheters entered no more easily than the straight instruments or those with the Van Buren or Guyon curves. The cystoscope revealed nothing except that the "bas fond" bulged upward. With stiff instruments, complete entrance into the bladder was not effected without extreme depression of the handles. Upon examination per rectum, the prostate was found to be smooth, harder than normal, and enlarged to four or five times its normal size, the right lobe being slightly larger than the left.

As is often the case, the patient was not aware that he was seriously afflicted, had received no treatment, and at the suggestion of prostatectomy, demurred. Therefore he was put to bed, and continuously catheterized for two weeks, with no improvement.

In view of the inability to demonstrate an intravesical growth with the cystoscope, the general bulging upward of the "bas fond," and the smooth, general enlargement of the two lateral lobes, a perineal prostatectomy was performed. The prostate was exposed by an inverted Y incision, and the capsule was split transversely. The gland was removed, mostly by excochleation, but partly by morcellement. This was accomplished without opening the posterior urethra. The floor of the prostatic urethra was freed with serrated scissors.

The patient being a very poor subject, in a general way, for surgery, as shown by the way he bore the operation, and the urine being highly infectious, the writer had not the temerity at this time to permit the bladder contents to escape through the perineal wound, fearing uremia or sepsis or both. It was hoped that the obstruction was entirely removed, since by sweeping the convexity of the curve of a large sound across the mucosa of the bladder floor, and following it with the index finger in the perineal wound, it could readily be determined that the floor of the prostatic urethra and bladder were quite thin. It was subsequently proven, however, that the obstruction was not removed. The residual urine was decreased in amount, but at least three ounces remained. The other symptoms were in nowise improved. After three weeks the perineal wound,

which had not yet closed, was reentered and the posterior urethra opened.

Upon passing the finger through the posterior urethra, a thin stricture-like obstruction was met at the bladder orifice which raised the bladder outlet at least a half an inch above the level of the bladder floor. This stricture-like obstruction was cut down by galvanocautery division of the urethral floor. This was done with the instrument devised and used by Dr. Wishard, of Indianapolis, for cauterization of the prostatic collar through a perineal incision.

There is nothing in the history of this case after the second operation, which is worthy of note. A large perineal drain was inserted and left in place for ten days. After its removal, the perineal wound rapidly closed and the posterior urethra was dilated with full-sized sounds twice a week for a month. The urine is now (eight months after operation) quite clear and is voided every four or five hours during the day. The patient is gaining flesh and sleeps undisturbed all night.

The writer has designedly omitted to speak of the minor details of treatment pertaining to bladder irrigation, internal medication, and so forth, in this case, for the reason that no unusual agents of any kind were used. He wishes to submit that, had he this case to deal with again, no change would be made in the manner of operating. The man being an unfavorable subject for surgery, and the urine being laden with pus microbes, performance of the operation in two stages, was certainly not without its advantages. The perineal opening with its granulating wall, it may be assumed, safe-guarded in a measure against sepsis and uremia, as Senn claimed in presenting his two-stage suprapubic cystotomy.

In many cases, in the writer's belief, it is more surgical to cauterize the prostatic collar through an aseptic perineal incision under guidance of the eye than to imperfectly accomplish this blindly with the Bottini incisor, searing the bladder mucosa with hot smoke and steam for which there is no exit. The only valid argument in favor of the Bottini operation as opposed to the perineal cauterization is that in the latter there is slight danger of septic or uremic poisoning through the ungranulated defect. This objection is met by executing the operation in two stages.

The writer disclaims the carrying out of a premeditated plan of a two-stage operation in the case cited, but felicitates himself that, through lack of temerity in this particular case, he was perhaps led in the right direction. It is possible that others in the future may see fit, in certain debilitated "prostatikers" with considerable general enlargement and constricting obstruction of the bladder neck, to remove the two lateral lobes, and after permitting the perineal defect to granulate, to cauterize the constricting collar.

Should their success with this method be as gratifying as his own, the author will feel fully repaid for recording his experience.

MASTOID DISEASE AND MENINGITIS.

BY SEYMOUR OPPENHEIMER, M.D.,
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BELLEVUE-UNIVERSITY MEDICAL COLLEGE DISPENSARY; INSTRUCTOR
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LARYNGOLOGICAL AND OTOLOGICAL SOCIETY; ETC.

THE increased attention and critical study of the cerebral complications of aural affections and the brilliant results obtained by the prompt recognition of the nature of the brain lesion or lesions, with the adoption of efficient and radical surgical measures, have led to the obvious conclusion that in many cases of meningitis the primary origin of the affection could be directly traced to some portion of the auditory apparatus. Friedreich has clearly emphasized this view in his statement that the importance of aural disease in the production of secondary diseases of the meninges cannot be overestimated and that the doctrine of otitic cerebral disease now forms one of the most important chapters of otology.

In practically all the cerebral complications of mastoid disease, with the possible exception of isolated, deep brain abscesses, the presence of inflammation of the meninges to a greater or lesser extent, accompanies the more prominent lesion of epidural abscess or sinus thrombosis and the symptoms of the former are masked by those of the latter, or the brain membranes are involved to such a slight extent that recognition is impossible. When the external pachymeningitis, as will be seen later, remains localized and is the result of infection with pus-producing organisms, the condition assumes that of an epidural or extradural abscess, and, as in this particular instance, the condition is primarily one of meningeal irritation, followed by the local pus collection, so may the pathological process possess an obverse aspect and the meningitis may be but the result, especially when extensive, of an infective phlebitis or pus collection extending beyond its boundaries and producing a condition that is rapidly fatal in a short time.

During the course of a mastoid empyema and most frequently in young children, a condition of meningismus or pseudomeningeal symptoms may develop and the difficulties surrounding the selection of proper treatment will be almost insuperable until a sufficient time has elapsed, in order that the value of the various symptoms may be correctly interpreted. Such a case came under my observation several years ago, in which, in consultation, a child of seven years was seen with a history of a purulent discharge from the right ear for one year following scarlet fever. Five days before coming under my observation she had been exposed to a draft and during that night she was awakened by intense, throbbing pain limited to the mastoid region of the same side. The aural discharge rapidly diminished in amount and within twenty-four hours had practically ceased and the mastoid showed beginning swelling of the soft tissues. The child at my first examination was worn out with the constant pain, the mastoid process was exquisitely tender to the

slightest touch and was red and swollen. There was a large perforation in the posterior inferior segment of the membrana tympani and the remains of inspissated pus in the canal and middle ear. The symptoms calling attention to apparent meningeal involvement were intense headache limited to the right side and especially referred to the temporal and occipital regions. The temperature was 103° F. and had been 100½° F. in the morning, while the entire symptom group indicated an intracranial extension of the infection. Immediate operation was advised, but was absolutely refused, so ice dressings were applied to the mastoid. The canal and middle ear were irrigated at frequent intervals with a warm normal salt solution and free drainage was established from the middle ear by removing the retained purulent material and enlarging the opening in the drum. Complete recovery promptly ensued and after a lapse of three years the child has had no further trouble with the ear. While this case recovered, such a result cannot be expected, as a rule, and while it is here cited to demonstrate the prompt subsidence of meningeal irritation in this particular instance, yet operation would have been equally successful and would have removed the dangers in the future to which she may be subjected, from the presence of the suppurating middle ear, which still remains.

The meningeal irritation may not necessarily advance as far as a true inflammation, but the symptoms may be caused by congestion and edema of the brain coverings, but this at first, and especially in the absence of operative treatment, is practically undistinguishable from an infective intracranial inflammation, except by a careful study as shown by the course of the disease. The meninges may be invaded either from the middle ear or by the involvement of the mastoid process, and it is with the latter especially that we have here to deal, although it is almost impossible in cases where the destruction of tissue is extensive to determine the exact path of infection with any degree of certainty.

The proportion of reported deaths from the intracranial complications of aural disease, and especially as regards the relation of the mastoid and meningitis, is suspiciously small, yet, we think, were due credit given to the aural origin of many fatal cases of meningitis associated with abscess and sinus phlebitis, the proportion would be materially augmented. Especially is this so in children, in whom the presence of a meningitis accompanying an acute or chronic auditory infection is not at all uncommon. Gruber found in 40,073 hospital deaths of all kinds, intracranial disease in 1,806, and of these 232 were caused by disease of the ear, while meningitis was present in 115 instances. A fact of considerable interest elicited in this connection being that of the latter number dying of meningitis, the male sex greatly preponderated, 87 being males, while but 28 were of the opposite sex. Korner in 151 observations found diffuse meningitis in 23 as the predominant pathological change, and in many of the other

complications patches of adjacent meningitis were constantly present. This is shown by the condition of the meninges in brain abscess, as a large proportion of these pus collections, which can be safely estimated at at least one-third, are the direct result of otitic disease, the infection having been carried by means of the meningeal tissue. As further showing the presence of this factor, McBride in 44 cases of fatal ear disease, found 12 who died of meningitis and in three which were classed as brain abscess on account of the predominating symptoms of that affection, there also existed a condition of diffuse meningitis. The large statistics of Barker, embracing 72,000 cases of all kinds of disease, show 45 fatal cases due to ear disease. In a study which he made of 50 fatal cases 72 per cent. were due to the association of meningitis and pyemia. This author asserts that of the ordinary complications of ear disease, more than nine-tenths probably consist of meningitis, septic phlebitis and pyemia.

While the brain envelope may be involved in limited or extensive areas dependent upon the degree of the infection, the variety of the inflammation may be different in some cases and the ordinary pachymeningitis may be present either as the internal or external variety. Cerebrospinal meningitis may also exist at the same time as a mastoid empyema, but no relation usually can be traced between the two, and as the effects of cerebrospinal meningitis are produced secondarily upon the ear and are not the result of infection from the auditory apparatus, they will not here be considered.

As regards infection, practically but two forms of otitic meningitis may be considered, the first resulting from infection by absorption into the circulation and differing from many cases, inasmuch as the exact path by which the morbid material is carried from the ear to the meninges is unknown; while the other variety depends upon the extension of the inflammation by contiguity from the mastoid region to the dura and from there to the other membranes enveloping the brain. The former variety is rapid in its onset, usually diffused, and once established is necessarily fatal, while the latter form consists of a gradual process, usually localized in its incipency and when diagnosed early is susceptible of cure by a radical operation. Poli relates a remarkable case of the former variety in which the rapid diffusion of the infection to the meninges and the entire cerebrospinal axis was most astonishing. Purulent leptomeningitis, therefore, is usually fulminating, sets in suddenly and terminates in but a few hours, or may continue before a fatal issue ensues for several days. While the localized focus analogous to an epidural abscess is more or less chronic, with mild symptoms which may apparently intermit from time to time before a regular course is established and which may last for several weeks or even months.

The internal form of pachymeningitis corresponding to the subdural or intradural abscess is comparatively rare, and is usually the result of a

circumscribed area of dural inflammation, becoming softened, corroded and perforating, with the deposition of exudation and infective material in the subdural space. Under these conditions should the pia and arachnoid become agglutinated to the dura, pus may accumulate in this situation and exist as a subdural abscess with softening and disintegration of the adjacent brain tissue. Should the membranes, however, not limit the spread of the infection, a general diffuse leptomeningitis will necessarily ensue.

In addition to the acute inflammatory changes of the meninges, a serous form has also been described, and, like the other, may originate from an otitis and compel surgical intervention. Müller has paid especial attention to this variety, and describes two cases occurring in his practice, in both of which a diagnosis of cerebral abscess was originally made, but no pus collection was found on operation. He considered the correct condition in one to be that of chronic serous external meningitis and an acute internal serous meningitis in the other. The symptoms in the first patient indicating a compressing, cerebral abscess and on account of the sensitiveness of the left mastoid process in connection with a preceding otitis, left little doubt of the otitic origin of the intracranial complications, as evidences of the compression within the skull were slow pulse and a congested retina, while motor weakness, headache, hyperesthesia of the right side, vomiting, vertigo, numbness and slight elevation of temperature, indicated an abscess of the temporal lobe, although there was no aphasia. The absence of stiffness of the nucha and high fever with a regular pulse, were against the presence of meningitis. The operation, however, showed the absence of pus, but the excessive amount of serous fluid found when the brain was exposed indicated a pathologic increase. The dura presented a degree of firmness quite unusual, and it was then considered that the affection was evidently a beginning suppurative meningitis in the stage of hyperemia and serous effusion. The chronic character of the process was shown by the long-continued headache preceding surgical intervention, while the disturbance in gait and equilibrium still persisted, showing that permanent lesions had been induced. In the second case the diagnosis remained in doubt for several weeks after the operation, but gradually the threatening symptoms induced by the compression ameliorated. The serous effusion diminished and the case recovered without further incident.

The location of the original focus of infection in the mastoid or its immediate vicinity will determine to a great extent the initial focus of meningeal infection. It may, however, affect the entire surface when a basilar meningitis is apparently the form of predilection, or the infection may remain localized with resultant discrete abscess, and as the course of the extradural abscess is very slow, adhesions form between the dura mater, pia mater and brain and act as a barrier to the development of a purulent leptomeningitis.

While the abscess so formed may remain quiescent for a lengthy period, further infection from this focus may ensue and a purulent leptomeningitis will follow, such a case being reported by Barkan. Secondary inflammation of the meninges, however, varies in intensity and extent in different cases, depending upon the quantity and quality of the infective elements and the power of resistance of the individual tissues. In some a profuse plastic lymph may be thrown out and the inflammation will thereby be limited in extent, while in others no such means of protection are afforded and a diffuse purulent meningitis results, so extensive as to sometimes involve the cord for a considerable extent. Two locations, however, are commonly the seat of choice, the temporosphenoidal lobe and the cerebellum, the particular direction in which the infection takes place depending to a measure upon the anatomical peculiarities of the individual case.

The precise mode of the extension of the infection is subject to great variations, but in a general way it takes place either by direct continuity or indirectly by way of the blood or lymph channels. By direct infection from the mastoid, caries of its inner wall may lead to sinus phlebitis, which in turn may give rise to a septic meningitis. Though the path of infection may be sometimes obscure, it is usually more or less direct, as the area of meningitis is almost invariably on the same side as that of the mastoid empyema. Septic phlebitis of the venous radicles leading from the mastoid is also probably one of the commonest methods by which the septic material is conveyed to the meninges, this route being aided in a considerable degree by the free inosculation of the small vessels of the ear and dura. In this way the infection may be carried through apparently healthy bone.

The dura of the posterior fossa may especially become involved by direct carious processes of the mastoid, or by necrosis, erosion or atrophy; the last form being seen in cholesteatomata. The extension of mastoid disease to the membranes of this region depends to a great extent on the arrangement of the system of pneumatic cells, and as the cells are lined with epithelium they permit the suppurating process to go on rapidly, and if it extends as far as the inner table the infection spreads more rapidly to the meninges than if it were separated from the brain membrane by a compact layer of bone. The relation of the route of the infection to the arrangement and number of the pneumatic cells also varies in the child and the adult, and, as a result of the anatomical structure of the mastoid in early infancy, inasmuch as it possesses but few cells, while the posterior wall is strongly developed, it renders disease of this region in the infant less apt to invade the meninges of the posterior fossa than is the condition in adults. Another factor, which, however, is not of as much importance in regard to the mastoid region as in that of the tympanic cavity, is the presence of occasional clefts or fissures in the bone, the presence of such apertures

of necessity bringing the disease process of the mastoid in direct relation and close approximation to the dura.

When a purulent leptomeningitis develops the pathogenic substance is carried into the arachnoid in various ways, either by perforating the dura or by means of minute channels which leave no macroscopical evidence. The original area of infection usually develops in the immediate vicinity of the diseased dura and travels from the base of the brain to the convexity of the same side and also across the base to the convexity of the other side, if the process be extensive. The pus is found in the furrows between the convolutions and also in disseminated patches, while the pia mater is hyperemic and edematous. The extreme difficulty of tracing the paths of infection from the ear to the meninges may be sometimes insurmountable. In this connection Wilson has reported a valuable case of leptomeningitis of otitic origin, in which the mastoid contained a deep-seated cavity filled with pus, but no granulations nor softened bone. The symptoms then improved for a day, but rapidly grew worse and the patient died comatose. The autopsy showed a large area of leptomeningitis over the base of the brain and the whole right lobe of the cerebellum, which also contained a small abscess. The dura over the upper surface of the temporal bone was healthy except at the junction of the petrous ridge with the squamous portion, where there was a foramen leading through the ridge from the posterior to the middle fossa and filled with pus.

The nature of the micro-organisms present in the mastoid empyema play some part in the virulence of the meningeal inflammation and a reduction of the virulence of the specific micro-organisms present in a given case effects the occurrence of a circumscribed meningitis, which, of course, is the preliminary condition of nearly all brain abscesses. If, on the other hand, the bacteria be of a virulent character and if they reach the inner surface of the dura, the inflammation rapidly spreads and a diffuse leptomeningitis is the result. For these reasons a brain abscess is rarely found with acute mastoid empyema and with the bacteria attenuated, an infection of the brain substance from the circumscribed meningitis rarely occurs and the patch of meningeal inflammation may exist independently for a long time. Various organisms may be found in the meningeal exudate, but the staphylococcus and streptococcus are by far the most important. Kirchner reporting a case of purulent meningitis with the staphylococcus as the only organism present, while in Hamilton's case of mastoiditis with the pia and arachnoid at the base congested and infiltrated with thick, yellow pus, both cultures of the blood and pus, gave pure colonies of the streptococcus pyogenes.

As illustrating the formation of an extradural abscess from a localized infective meningitis, which originated from a mastoid empyema, the following case well shows the sequence of events and the results obtained by early operation.

C. M., male, aged thirty-five years, has always been in good health until two years ago, when, following a severe attack of influenza, severe pain developed in the left ear and continued for several days, when it gradually diminished in intensity and finally disappeared. This occurred several times within the two years since the primary attack, but as it disappeared spontaneously nothing was done for it. One week before he came under my observation the pain had again commenced and instead of ameliorating was gradually increasing in intensity, so that he was forced by its violence to seek relief. No discharge had been noticed at any time and when the ear was examined the canal was perfectly dry, but exceedingly red and inflamed, especially along the posterior wall, while the tympanic membrane was violently inflamed and was pushed forwards, as if the tympanum contained fluid. The posterior and superior wall in part projected into the lumen of the canal, and all the parts were exquisitely tender. The auricle was pushed forwards and the mastoid was swollen and tender. The temperature was 100° F., while the bowels were constipated. Immediate operation was advised and accepted, and after the usual preparation of the patient the mastoid was opened and found filled with an offensive pus, while there was extensive destruction of bone tissue. But little pus was found in the region of the tip of the mastoid, the greater part of it being in the cells in immediate relation to the antrum. The pus and necrosed bone of the mastoid and antrum was thoroughly removed and free communication established through the tympanum and external canal by the above means. The tympanic cavity was found full of purulent material. Marked relief to the symptoms was obtained and he progressed through the usual course for two weeks, with the mastoid wound healing nicely, when he again complained of pain in the former situation and also located a painful area extending still further back than the mastoid tenderness. Within a few hours he became slightly delirious, food was vomited, his mental condition was sluggish, and he complained of severe pain in the occipital region. The temperature was 104° F. and the pulse 120. No other symptoms that would in any way aid in clearing up the condition could be ascertained. The original mastoid wound was then enlarged backwards and the brain cavity was opened, the dura immediately projecting outwards as a red, granulating, non-pulsating mass. Free incision was made into it, about three drams of pus evacuated and an abscess cavity was found walled in by masses of plastic lymph, although the meninges were beginning to become inflamed in all directions as far as could be seen. The pus was thoroughly washed out, the granulations removed and the usual dressings applied. The pain immediately ceased, and no further trouble was experienced, as the patient made an uneventful recovery. No route by way of which the infection traveled could be ascertained.

A somewhat similar case to this is recorded

by Buck, of a man of fifty-seven years, of strong constitution, who had during a period of ten years five distinct attacks of acute otitis, from all of which he apparently made a good recovery. The present attack had lasted for seven weeks, with headache and dulness of hearing, but no discharge. The posterior wall of the canal was swollen, the membrana tympani was injected and the mastoid was tender on pressure. The drum membrane was incised, but no pus escaped, and he experienced relief for about a week, when the pain returned and the mastoid became swollen. An incision was made through the mastoid periosteum and some relief was obtained, further operation being refused by the patient. The following day he became unconscious, pupils were non-responsive, face flushed, head hot, pulse 120 and full, while the breathing became stertorous and death occurred the same night. The autopsy showed a purulent basilar meningitis and a free communication between the mastoid antrum and the cavity of the sigmoid sinus, the two forming an irregular cavity filled with pus.

When a mastoid empyema is about to infect the meninges there is almost invariably marked local pain, usually associated with fever. When such a condition occurs, especially in the presence of a diminishing aural discharge, the patient should be considered in serious danger of cerebral complications.

Headache is probably the earliest and most pronounced of the meningeal symptoms, and while at first it may be more or less localized to the temporal or occipital regions of the affected side, it later becomes generalized, even though the patch of meningitis remains localized, the headache may in some cases be intense and general throughout the whole course of the disease. Dizziness, auditory and visual hyperesthesia, mental weakness, delirium and convulsions are also seen, but are subject to considerable modification by other existing complications, such as abscess with high temperature and slow pulse, or sinus phlebitis of a septic form, accompanied with rapid diurnal changes in temperature. Usually the temperature is high and remains constant with but few fluctuations, but it may vary from 101 to 105° F. Photophobia, vomiting and local or generalized convulsions may also indicate meningeal involvement, while in children general convulsive symptoms are common owing to the high grade of fever usually present from the onset of the meningeal irritation.

The respiratory changes may come on quite early and while in ordinary meningitis breathing is rapid and irregular, with the pulse small and frequent, in the basilar type Cheyne-Stokes respiration is frequently noticed, especially when the posterior cranial fossa has been implicated. The younger the patient the earlier delirium appears, but it is not necessarily characteristic of this form of meningitis as it may not occur until toward the fatal termination of the case and is present in any of the forms of the intracranial complications, although if it should appear early, it may be of

value in indicating a complicating meningitis, but only in connection with other symptoms. In other instances it will be absent during the entire course of the disease, the patient slowly passing into a condition of coma and death. The ocular phenomena in basilar meningitis, also present some points of import in this connection, although the optic disks are usually normal as it takes a week for the development of optic neuritis when the disease is limited to the posterior fossa, yet the third, fourth and sixth nerves are sometimes involved; the most important being, in this connection, the involvement of the third nerve, producing at first contraction of the pupil and later dilatation. An early symptom of paralysis also is the failure of the pupil to respond to light, sometimes remaining widely dilated even when exposed to the most intense illumination. Another symptom of the same class of which cognizance should be taken is the development of strabismus from the involvement of the nerves previously mentioned.

Constipation as a rule is often obstinate and especially so towards the end of fatal cases, while if diarrhea be present or the bowels be normal, brain abscesses and meningitis may with a certain degree of assurance, be eliminated. Occasionally, in rare cases, paradoxical symptoms may be present, as slow pulse, aphasia, agraphia, impairment of memory and progressive emaciation, these cases, however, are of a very chronic type and the exact intracranial lesion may only be determined when the case comes to autopsy. In adults, of course, it is possible to differentiate the symptoms of the intracranial complications from that of the mastoiditis, but in children such is not always the case and a meningitis may be fairly well under way before more prominent symptoms become evident.

The pathological changes taking place in the dura vary in their rapidity with the extent of the preliminary infection and from at first being slightly reddened and dull in appearance, the membrane will pass through the successive degrees of vascularity until it becomes thickened and studded with granulation tissue. In the chronic cases dependent upon a circumscribed area of necrosis or caries of the underlying mastoid process, it becomes black in color like the bone, softened and gangrenous, while the parts are bathed in serum and pus and may later perforate producing a diffuse leptomeningitis. Where the destruction of the osseous tissue is accompanied with considerable pus formation, the dura is separated from the bone by a collection of purulent debris, varying in color from the creamy pus of the acute cases to the thin, discolored material in the more chronic forms. As pointed out by Zaufal, in the very chronic cases, the dura may be enormously thickened and present a fibrous or sarcomatous appearance. In one case coming under his observation, the dura being three-fifths of an inch thick.

The late development of basilar meningitis following a previously localized area surrounding a

temporo sphenoidal abscess was well illustrated in the following case:

R. L., female, eighteen years of age, had measles in infancy followed by a suppurating ear for several years. The discharge then ceased for a time, but would make its appearance in small amounts whenever she had an attack of coryza. Four months before she came under my observation the impairment of hearing became markedly worse and a scant foul discharge was constantly annoying by keeping the canal moist. A few weeks later pain began to develop in the aural region, but she stated that she could never definitely localize it with any degree of accuracy, but the slightest movement of the head and body would immediately render it much more intense. On examination, she was in an apathetic state and cerebation appeared to be very sluggish. There was sensory and motor aphasia, marked drooping of the eyelid and the left pupil was dilated, evidences of optic neuritis on this side being well marked. There was a large perforation of the membrane surrounding the umbo and a smaller one in the flaccid membrane. The temperature was 98.2° while the pulse was but 64. Under ether anesthesia the radical mastoid operation was performed and great quantities of blackened necrosed bone and foul pus were removed from the region of the antrum and inner wall. The cortex of the mastoid showed a condition of compactness almost approaching eburnation and was removed to reach the softened areas, with the greatest difficulty. As evidences of cerebral abscess were more prominent even than the mastoid symptoms, an independent trephine opening was made in the skull over the temporo sphenoidal lobe and the dura immediately presented, as in the previous case, as a red, non-pulsating mass. An opening was then made in the inflamed membrane and after considerable difficulty about one-half ounce of pus was evacuated. Considerable improvement was evident in her condition for twenty-four hours, when the temperature ran up to 105°, the pulse became erratic and bounding, varying from 70 to 120, while intense pain was complained of over the entire head, but especially on the left side, where all her trouble had been. The symptoms of purulent meningitis rapidly increased and she died in coma two days after the operation. An autopsy was refused.

The serious aspect of the intracranial complications of mastoiditis renders an early diagnosis of the pathological process present in a given case of supreme importance, and the differentiation of any symptoms indicating a beginning meningitis must, of necessity, be made early in the disease to allow the patient the greatest benefit from operative treatment. The chief symptoms of meningeal irritation are headache, occasional nausea, vomiting, vertigo, moderate increase of temperature and some acceleration of the pulse rate, while thirst, anorexia and constipation are mostly complained of, but are not characteristic. Percussion of the skull affords but little evidence as it may be either painless or painful above and behind the

auricle. The differentiation between meningeal irritation and true meningitis in my experience being almost impossible, although the latter may be recognized when the headache becomes persistent and is followed by the group of symptoms above mentioned with, in addition, drowsiness, delirium and stupor, while the pulse at first accelerated, later becomes retarded.

The confusion of the symptom-complex may also be greatly enhanced by the primary stages of the meningitis being due to the congestion and edema of the surrounding parts. An interesting case has been reported by Knapp of aural suppuration with headache, nausea, dizziness and some stupor. Later the mastoid became swollen and tender, and an opening an inch deep was made, but no pus was found. Four days later free suppuration occurred, both from the opening and the canal, and temporary relief was obtained. The grave symptoms, however, returned, with a rise of temperature to 105° and death occurred. The necropsy showed a purulent leptomeningitis of the left temporal lobe and lateral ventricle, while pus was on the inner side of the mastoid, in the attic and especially around the foramen lacerum.

The great difficulty in recognizing the condition is also graphically shown by another case of the same author's of an apparently strong, healthy man, with purulent otitis for three years. The discharge had ceased for one week and there had ensued headache, increase of temperature, drowsiness, stupor, movements of hands, incoherent and difficult speech and delirium. One physician made the diagnosis of a partial meningitis, while three others considered the condition as one of otitic cerebral abscess. The mastoid was sclerosed and under the cortex the osseous tissue was blackened in patches and contained a few small cavities filled with thin pus, while more deeply, the bone appeared healthy, hard and ivory-like, and free from caries or necrosis and gave no clue to the way by which the infection might enter the cranial cavity. The patient died three days later and the autopsy disclosed an extensive tuberculosis of the lungs, pleura and pericardium and a tubercular meningitis which had no connection with the ear.

The difficulty of diagnosis is also enhanced when the otitic meningitis occurs in a tuberculous, nephritic or diabetic individual and a careful survey of the past and present history of the case may even then fail to establish the identity of the affection. As an operation would be more successful if the diagnosis was successfully made before opening the cranial cavity, an exploratory operation may in selected cases be advisable, but usually it is often useless and sometimes it may be dangerous, as it may hasten the unfavorable termination of preexisting lesions, or even induce the formation of new ones.

Aside from the localizing symptoms which are of great value when present, the chief symptoms indicating an intracranial lesion have already been mentioned and the comparative worth of the

different symptoms is of great value in determining the presence or absence of meningitis. Optic neuritis is a symptom of great value, but is less frequent in meningitis than in brain abscess. Headache is very intense in leptomeningitis, although it may be absent in some cases. Slowness of the pulse may be an important symptom of incipient meningitis, but unfortunately it is often not characteristic. Rigidity of the much is seen in many conditions and depends upon divers causes, so that it is not characteristic of meningitis, although in connection with other symptoms I consider the rigidity of this region as of considerable diagnostic import. Vertigo and nausea may exist in any of the intracranial complications of mastoid empyema, while fever when high and persistent is strongly indicative of a purulent leptomeningitis, although Allport reports a case of influenza followed by mastoiditis, sinus thrombosis, meningitis and death in which as a most remarkable feature, was the continued presence of a subnormal temperature. The patellar and other reflexes afford little aid, although they are generally absent in meningitis.

The most reliable group of symptoms characteristic of meningitis in adults are in connection with the preceding history, constant high temperature, headache and vomiting. But at the same time any intercurrent acute affection must be excluded and the diagnosis is of necessity rendered much more difficult in children, since any acute affection and even an attack of gastro-enteritis may for a time produce symptoms very similar to those of meningitis.

Finally, lumbar puncture may in case of doubt, afford much valuable information, Grunert in two cases obtained positive results in suppurating leptomeningitis of otitic origin, while Gradenigo used the method in two cases with brilliant results and as under aseptic precautions Quincke's method offers no especial dangers to the patient, it may in certain cases be the only way left to ascertain the presence or absence of pus in the cranial cavity.

It is necessary in this connection, however, to constantly bear in mind in these cases, that it is rare to have but one complication, as two, or even three, viz., abscess, meningitis and sinus phlebitis, may all be present in a fatal case. The exact condition cannot be accurately known until an autopsy is made, but even when such is the case, a careful study will enable one in a limited range, to distinguish the most prominent affection. Such a case has been reported by Knapp, in which necropsy showed mastoid empyema, perforation of the lower mastoid wall and extension of the pus down the fleck, with epidural abscesses in the middle of the posterior cranial fossa, septic thrombosis of all the sinuses, of both internal jugular and most of the cerebral veins with in addition an abscess in the temporosphenoidal lobe and cerebellum and diffuse purulent meningitis.

With a better appreciation of the relative value of the symptoms and a constantly improving surgical technic the prognosis of meningitis fol-

lowing mastoid empyema affords considerable hope, especially as favorable results have followed prompt diagnosis and early surgical relief. MacEwen having reported six recoveries in itself proves that a lethal issue does not always ensue. In the majority of instances, however, secondary purulent meningitis is rapidly fatal, especially so in patients under ten years of age, so that as a rule it may safely be said that the younger the patient the more likelihood there is of a fatal termination.

In the early stages of meningitis and for but a short time only, ice caps to the head and large doses of bromides to lessen irritability of the nerve centers may be tried in addition to free purgation, but these measures are of little value, and the only hope as regards success lies in the early institution of surgical measures. The earlier the operation is performed the greater the chances of success and as the disease is invariably fatal if not checked by operation, we should not hesitate to interfere even in apparently hopeless cases.

It is unnecessary here to describe in detail the various steps of the operative procedures, but the principles indicated are to perform the radical mastoid operation thoroughly and to take especial care to discover the site of any perforations into the cranial cavity. If such are found they should be enlarged and the brain cavity freely explored, but if, however, no sinus is found, or no area of necrosis suggestive of the site of the meningitis be found, the roof of the tympanum should next be explored by entering the cranial cavity above the meatus. The inner table may also require removal in the area of the mastoid wound and any focus of meningeal inflammation or pus cavity should be thoroughly cleansed, the parts packed and the usual dressings applied.

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MEDICAL PROGRESS.

MEDICINE.

Subcutaneous Nourishment.—Repeated attempts have not been wanting to nourish the body by means of oil or fat injected under the skin and it is even believed by some that the resting body can be kept at a steady weight by combining these injections with rectal enemata. Experimental data are, however, wanting and it is held by others that the amount of fatty substance absorbed is really so small as to play no part in nourishment. H. WINTERITZ (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) has approached this mooted question from an entirely different point of view. He injected iodized fats and could follow their course in the body by quantitative iodine determinations of the urine during life and of the organs after death. The results are very discouraging, for though iodine appeared in the urine very soon after injection, the excretion was so very small and was kept up for such a very long time, that absorption here must necessarily be a very slow process. Thus, several months were required before 500 grams were entirely taken up. Even the rectal administration of oil is more satisfactory, especially if pancreatic substance is added. Another disadvantage lies in the fact that multiple injections are necessary at each sitting. A number of inoperable cases of esophageal and gastric carcinomata steadily lost weight with this method of nourishment and in some, deposits of unabsorbed fat were found under the skin after death.

Normal State of the Cardia of the Stomach.—The researches of D. SINNHUBER (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) prove that the cardia of the stomach is normally in a condition of tonic spasm. This is increased by the muscular fibers surrounding the esophageal opening of the diaphragm and by the oblique entrance of the esophagus into the stomach. The spasm is the result of two forces acting in an opposite direction: the one contracting and the other relaxing. The former is particularly localized in the region of the cardia or the cardia itself, the latter is conducted from the medulla oblongata through the vagi to the cardia. Division of the vagus above the diaphragm leads to relaxation of the cardia, while division high up, especially when the right inferior laryngeal nerve is not injured, will bring about a temporary increase in tone.

Origin of Urobilin in the Stomach.—Urobilin is sometimes found in acid gastric contents and A. BRAUNSTEIN (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) is of the opinion that it is of intestinal origin just like the urobilin in the bile itself. A high acidity of the stomach contents is not necessary, unless bile rich in urobilinogen has regurgitated into the stomach. This regurgitation must, however, take place through the bile and need not remain in contact with the gastric mucosa long before the test becomes positive.

Histogenesis of Lymphatic Leucemia.—The underlying cause of lymphatic leucemia is an increased proliferation of lymphocytes in the lymphnodes. It has always been a question how these cells reach the blood-stream until it was shown, that this takes place,

to some extent at least, via the lymphatics. M. MOSSE (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) also examined the vessels and found aggregations of cells around as well as within the vessel-walls. He could not, however, decide whether these cells reached the blood-stream passively or by virtue of their own amoeboid motions.

Hemorrhagic Infarction of the Lung.—The careful examinations of E. TIEDMANN (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) upon lung infarcts are based upon the study of a large pathological material. They are generally peripheral and wedge-shaped with the base directed toward the pleura so that a prominence is formed. In size they vary considerably; they may be very small and multiple or so large as to involve an entire lobe of the lung. Percussion will give dulness over a circumscribed area of the chest but sometimes there is also a tympanitic note due to the surrounding edematous pulmonary tissue, the air in the bronchi, which is set into motion, or the loss of tension within the immediate neighborhood of the infarct. Mistaking the latter for a tuberculous lesion is hardly probable since the position of the two conditions differs. Further physical signs are, on palpation the vocal fremitus may be increased, or, if the infarct is very voluminous, diminished; on auscultating we often hear neither respiratory murmur nor adventitious sounds except in the earliest stages. If râles do occur, these are pleural or bronchial in origin, or else are transmitted from the surrounding alveoli, and bronchial breathing is not rare since the solid tissue transmits well the bronchial sounds. Bronchial râles are also well propagated where a bronchitis exists. In most cases examined the infarct was situated in the right lower lobe; in only one case was the apex involved. The diagnosis is often rendered very easy by the presence of an endocarditis or nephritis and by the clinical symptoms.

Observations on Leucemia.—P. RECKZEH (Zeitsch. f. klin. Med., Vol. 50, Nos. 1 and 2) has had the rare luck to observe seven cases of leucemia, including chronic lymphatic and mixed types, and one complicated by a pernicious anemia. All the patients were males; a history of trauma to the splenic region could be elicited in three, while in the others rheumatism, nervous influences and malaria probably played an important rôle. In the traumatic cases the onset was more or less sudden. The following symptoms deserve mention: Initial hemoptysis and enormous hemorrhages from the nose, fever due to constipation or complications, albuminuria, edema and ascites in the later stages, very marked swelling of the spleen and lymphnodes; dyspnea, due to complicating pleurisy or pneumonia or secondary to pressure of lymphnodes on the bronchi; catarrh of the intestinal tract and marked tenderness of the bones. The characteristic blood-changes were found in all cases. In order to settle the question of migration of lymphocytes, the author several times applied cantharidal plaster to the lymphatic cases, but only leucocytes were found in the resulting blisters. The pus from a small acne pustule examined was also free from mononuclear cells. Where a pernicious anemia complicated the disease, this was probably secondary from the profuse leucemic hemorrhages. In one case pilocarpine was tried extensively without either good or bad effects. In conclusion, a case of pseudo-leucemia with extensive metastases and one of generalized lymphatic tuberculosis are reported.

Marked Hemorrhagic Diathesis Complicating Jaundice.—The case reported by E. FABIAN (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 1 and 2) is exceptional from many points of view. A patient, forty-four years old, was suffering from chronic ob-

structive jaundice with attacks of colic for many years, so that gall-stones were surmised with certainty, but the autopsy revealed caseous tuberculous lymphnodes at the porta hepatis which had completely destroyed the common duct. The direct cause of death was an uncontrollable hemorrhage from almost all the mucous surfaces of the body. The most interesting bleeding was that from the bronchial mucous membrane; for several days before death, the patient became cyanotic and dyspneic in attacks and then voided perfect casts of the bronchial tree, showing clearly the subdivisions of second and third order. These casts consisted solely of clotted blood.

Circulatory Disturbances in Acute Infectious Diseases.—It has already been proven that collapse in infectious disease is caused by exhaustion of the vasomotor system. PÄSSLER and ROLLY (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 1 and 2) have repeated the experiments with improved methods, in order to ascertain what part the heart itself plays in the process. The conclusions were in the main the same, since it was found that the heart is in no way responsible for the lowering of blood-pressure. Quite on the contrary, in pneumococcus and diphtheria infection at least, the heart compensates for the vascular paralysis, by increased work. Whatever weakening of cardiac action eventually occurs is to be ascribed to insufficient circulation in the heart muscle itself from lowered arterial tone. In diphtheria alone, a diminished resistance on part of the heart was noticed, which might develop into complete cardiac paralysis after prolonged action of the toxin. This corresponds with the fact that anatomical lesions are more often found in the heart after diphtheria than after other infections.

Visceral Syphilis.—Occasionally intra-abdominal gummata have peculiar locations so that wherever an extraordinary symptom-complex presents itself, syphilis must be carefully considered. The same holds true for common complaints such as gastric ulcer and cholelithiasis, which do not yield to the usual treatment, especially if the patient gives a history of a venereal sore. H. QUINCKE (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 1 and 2) mentions several interesting cases from his own extensive practice. In one, marked dilatation of the stomach with all its concomitant symptoms developed and while lavage and diet brought about some amelioration, a real improvement was noticed only after inunctions and iodides. The patient died later of some other cause and at the autopsy the duodenum was found compressed by the remains of a retroperitoneal gumma. In a second case the gummata were located more posteriorly and the liver was the seat of an interstitial process. The correct diagnosis was made during life but only because there also was a motor disturbance in the larynx. Cases III and IV closely simulated cholelithiasis since there was gummatous induration about the biliary passages. Stress is then laid upon the syphilitic mesarteritis which underlies so many aortic aneurisms; in two cases an antiluetic treatment brought about considerable improvement and almost complete disappearance of physical signs, while in a third a compression of the subclavian artery was materially benefited. In conclusion, three interesting cases of brain-syphilis are recorded: the first presented the symptoms of a meningitis with implication of both facial and acoustic nerves or their nuclei; in the second there was also bilateral deafness with right-sided facial paresis, while the last was remarkable on account of its subnormal temperature: the lowest record was 90° F. on the day before death.

Oxyuris Vermicularis.—Anybody who will take the trouble to hunt through text-books, will encounter many contradictory views concerning the common

thread-worm. This has led A. HELLER (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 1 and 2) to give a brief account of the peculiarities of this parasite. Its entire life-history takes place in one host. As soon as a ripe egg reaches the stomach, the worm will break through the shell at a certain more prominent place near the head of the egg. The free embryo at once migrates into the duodenum, where it goes through all its phases of development until ready for reproduction. This latter process takes place in the cecum and the vermiform appendix, where the largest number of egg-bearing female-parasites are regularly encountered. The eggs are then deposited in the further downward course, upon the mucus secreted in the colon and rectum and in the moist secretion of the anal fold. Auto-infection is the rule, for since the itching is severe the patients will infect their fingers from where the worm eventually gets back to the stomach. An examination of the finger-nails of persons afflicted invariably shows the presence of eggs and even of young worms. The treatment is simple but must be carried out conscientiously. Calomel is first given, since this removes mucus which is so essential as a breeding place; this is followed up by santonin and large enemas containing 0.2 to 0.5 per cent. soap. After eight days the cure may be repeated. Care should be taken that no affected member of a family goes untreated, since one may reinfest all.

The Value of Agglutination in the Diagnosis of Typhoid.—That the value of agglutination phenomena for the diagnosis of infectious diseases is much more complicated than was assumed by earlier authors, is the conclusion arrived at by H. STERN (Berl. klin. Woch., July 27, 1903), from a study of late observations. The increase in the degree of agglutinative action of the blood serum in the presence of the typhoid bacillus, beyond the limits which characterize the non-typhoid sera,—that is in a dilution of 1 to 50 during a two-hour exposure and microscopical observation—cannot at the present time be taken as a certain indication of a present or past typhoid infection. Numerous investigations within the last years have shown that the blood serum of an organism, which has been infected by some specific germ, not only exhibits agglutinative properties in the presence of this particular bacillus, but also reacts in the presence of related varieties. It has even been proved that various proteus and staphylococcus species have also become agglutinated in the presence of the typhoid bacillus. The difficulty remains therefore of distinguishing between a direct and an indirect agglutinative action. Serum diagnosis cannot therefore at present give proof of the true causative factor in an infection—it only indicates the probable source, and the probability is changed to certainty in proportion to the degree of agglutinating power which the serum displays. It seems proper, therefore, not to speak of a positive or a negative Widal reaction, but simply to state that fact, that is to say, the approximate limits observed with the bacterial varieties in question. The reaction is not one which is restricted to one species, but is characteristic of certain constituents of the bacterial cell.

Nocturnal Incontinence and Adenoids.—Apropos of two cases in which ablation of adenoid vegetations at once checked nocturnal enuresis of years' standing, U. MELZI (Gazz. Osped., July 12, 1903) reviews the various theories as to the relationship between the presence of adenoids and incontinence; and concludes that whatever may be the pathogenesis of enuresis in adenoid patients, the fact remains that in a large proportion of cases, extirpation of these vegetations does cure nocturnal enuresis; and in the treatment of the latter condition, the possibility of adenoids as an exciting cause should always be borne in mind.

SURGERY.

A New Operation for Puerperal Mastitis.—The disadvantages of the usual, radiating incision, are the long time required for closure of the wounds and the deformity which usually follows. E. HOPMANN (Centralbl. f. Chirurgie, Aug. 1, 1903) now makes a semi-circular incision around the lower half of the breast, dissects it bluntly from the fascia of the pectoralis major and then incises the abscesses widely from behind forward and from the center to the periphery. The drainage tubes will then lie in the most favorable position so that they can be removed in the majority of cases in fourteen days. The scar will be covered by the pendulous portion of the gland and will hardly be noticeable. Deep abscesses which can not be opened without very deep incisions from in front are also rendered easy of access. A similar operation is recommended for the extirpation of enlarged prepatellar bursae.

Spear Wound of the Heart.—A most interesting example of this condition is described by T. McARDLE (Jour. R. A. M. C., Vol. I, No. 2), where a barbed spear was embedded in the chest, passing through the wall of the left ventricle, but without entering the cardiac cavity, and the patient made a good recovery after operation. The patient was a Soudanese, and the spear entered near the lower angle of the left scapula, passed through the chest and projected at a point midway between the left nipple and the midsternal line, about one inch above the nipple. Operation was done. A part of the sixth rib was resected and the spear was found to have penetrated the margin of the left ventricle. This fleshy fragment was divided, the spear withdrawn and the external wound sutured. Restoration of pulse and respiration followed and the man made an uninterrupted recovery. Interesting points are the slight general influence produced by operative interference with the cardiac muscle, the profound disturbance caused by the change in cardiac position, as shown by the apparent fatal syncope which followed traction on the spear while it was still fixed in the wall of the heart, and the peculiar modification of the cardiac sounds produced by the presence of a foreign body in the cardiac wall.

NEUROLOGY AND PSYCHIATRY.

Protracted Alcoholic Delirium.—It is necessary to distinguish this delirium from the acute alcoholic psychoses on the one hand, and from chronic alcoholic paranoia on the other. Protracted alcoholic delirium, according to S. A. SUCHANOFF and I. N. VEDENSKY (Roussky Vrach, No. 28, 1903), is observed in persons who have been addicted to alcohol for a very long time, and who have formerly undergone several attacks of delirium tremens. The first symptoms are those of auditory hallucinations and illusions; he hears "voices" which are accompanied by noises in the head and ears; the patient fully appreciates his condition, and is even able to refer to it in somewhat doubtful manner. These auditory hallucinations are of a variable degree of intensity and form. He is cursed for his alcoholic excesses, or he hears some one defending him from maligning enemies; or the hallucinations are of an intensely blasphemous character, etc. In severe cases the patient gradually loses the appreciation of surrounding conditions, and therefore asserts the stronger his belief in the reality of the hallucinations. However, notwithstanding the prolonged character of the affection there is usually no marked inhibition of mental powers, and the "voices" gradually lose their significance. The majority of such patients are thus able to keep out of asylums, and even attend to their ordinary occupations, except, of course, such of them as are prevented by the

"voices." A great many of the patients become total abstainers after certain threatening symptoms. Chronic alcoholic paranoia is distinguished from protracted alcoholic delirium by the fact that in the former there is a definite persecution mania, which is often manifested in violent outbreaks. As contrasted with the alcoholic's good-nature the paranoiac is suspicious, quarrelsome and often dangerous. The course of the disease in paranoia is progressive, while under favorable circumstances the alcoholic rapidly improves, and is soon convalescing. Psychically the paranoiac may soon become demented, and, of course, disabled from attending to any kind of work, while the alcoholic's mentality suffers but little. In alcoholic melancholia, which may sometimes be confounded with protracted alcoholic delirium in its early manifestations, there is a condition of depression and despair; the patient is frightened, morose; he suffers from threatening auditory hallucinations of a terrifying nature; he seeks isolation, is unwilling to converse with anybody, etc. Of the cases observed (out of 4813 insane patients there were 33 with protracted alcoholic delirium) 30 were men and 3 women. Twenty were tainted by alcoholic heredity, 3 by nervous and mental affections of relatives, and in general the hereditary influences could be traced in 96.55 per cent. of the cases. The very great majority—fully 88 per cent.—belonged to the illiterate class of the community, including, among others, agricultural laborers, factory workers, etc.

Idiopathic Contractions of the Right Arm.—The patient had been suffering for the last three months with clonic, lightning-like convulsions that would occur 25 to 50 times per minute. They begin by an abnormal movement of the right shoulder joint, whereby the scapula rotates somewhat around its horizontal axis, and the joint is slightly raised, while the head is turned back and the chin to the side. This is followed by a maximum pronation of the forearm and the close approximation of same to the trunk. The hand then drops down to the sexual organs or continues its motions toward the left axillary region, and is then drawn forcibly (by the patient) backward and downward. This cycle of movements which is extremely painful and renders the patient very miserable, ceases only during the sufferer's sleep. Outside of great physical exertion VERSHUBSKY (Prakt. Vrach, No. 27, 1903) failed to discover anything in the patient's past history that would give him a clue to the etiology of the condition. He was compelled to exclude, through the absence of the necessary factors, toxic influence, psychic states frequently characterized by localized convulsions, such as cortical epilepsy, and others; organic disease of the nervous system, as, for instance, tumor of the brain, was excluded by the absence of any other symptoms, etc. Of the functional nervous disorders, the affection did not resemble hysteria, epilepsy, chorea, paralysis agitans, or any of the tics. The only similar disease which could be supposed in this case would be paramyoclonus multiplex; but in this the muscular contractions do not embrace whole groups of muscles, and, moreover, the muscles affected are usually symmetrically disposed, which was not the case in the patient under observation. It thus remained for the author to designate the case as one of idiopathic contractions. As regards the treatment of the condition, it is of interest to observe that neither drugs nor psychic therapy seemed to produce any effect. Not even hypodermic injections of duboisine sulphate, of marked utility in many similar conditions, were of any avail here. It was then decided to place the patient in the hospital with the possible view of operating, when in the course of a few days amelioration showed itself, and in about two weeks patient was discharged

considerably improved. However, as the improvement did not last long, and the patient insisting on anything being done to relieve him, operative interference was finally decided upon. The operation consisted in the separation of the tendons of the various muscles involved in the convulsive seizures. The convulsions ceased entirely during the first three days after the operation, but later on the contractions were renewed though not with the former severity.

A Definition of Epilepsy.—Idiopathic epilepsy is the real and original epileptic condition, and should be separated from Jacksonian, traumatic and other so-called forms of epilepsy. This distinction is drawn by J. W. WHERRY (Am. Med., Aug. 15, 1903) and from his own observations and the reports of other observers, he defines epilepsy as a state of autoasphyxia or a condition of physiological strangulation or suffocation; except that the cause manifests itself through obstruction to circulation rather than to respiration, though the ultimate effect in both cases—depriving the brain of oxygen—is the same. Several observers have noted that convulsions have followed hanging, which were similar to those of epilepsy. Convulsions as a physiological process, can usually contend successfully against a physiological cause, as in epilepsy, and it contends with equal vigor, though with less success, against a mechanical one, but in each instance it arises in the same chemic way, from similar conditions, and in both cases it is introduced for purposes of relief. The convulsion therefore arises from a condition of asphyxia, which has its birth in a vasomotor spasm. If the latter could be explained, the author believes that the long-sought cause of epilepsy would be revealed.

PHYSIOLOGY.

Contribution to the Study of Spinal Reflexes.—In the investigation of the spinal reflexes of the European turtle, G. FANO (Archives Italiennes de Biologie, June 10, 1903) was led to recognize marked oscillations in the excitability of the spinal centers, and to suppose that these oscillations are caused by the conflict between inhibitory and automatic actions. He also established the influence exerted by these variations upon the manner in which an animal reacts to external stimuli. It follows from his research that the internal work of the voluntary centers, in acting upon the bulbar functions, so far as it does not express itself in external movements, is revealed as an influence upon the functional capacities of the nervous centers and contractile tissues, which influence, if not having a metabolic basis, might at least be classed among the trophic functions, and which evidently has some effect upon voluntary as well as reflex actions.

Destructive Ferments in the Animal Cell.—A contribution to the question as to whether the animal cell secretes a ferment which is capable of destroying sugar is made in the form of a preliminary communication by I. FEINSCHMIDT (Fortschritte der Med., Aug. 1, 1903). He was able to secure from fresh pancreas, liver and muscles, by means of a Buchner press, a fluid which rapidly disintegrated sugar—care being taken that the procedure was carried out with all precautions as to sterility. The addition of small amounts of chloroform sterilize the fluid but do not interfere with its glycolytic powers. The latter are interfered with, however, by the addition of larger quantities of antiseptics. In the presence of hydrogen gas the glycolysis was more marked than in ordinary air. During the process there is produced, carbonic acid, alcohol and various other acids. Fermentation in most cases did not begin until some three to six hours. The author was able to isolate the ferment from the fluid by means

of ether and alcohol, and in comparing the two, he found that if the ferment alone was mixed with the sugar, the reaction came on quicker and was more marked than if the fluid itself was employed.

The Physiological Action of the Proteoses.—It is well known that the products of proteid digestion, when injected directly into the circulation, exert various toxic effects, among which are the abolition of the coagulability of the blood, and changes in its reaction and composition; an acceleration of lymph-flow; a fall in arterial pressure; anuria; deep narcosis, and other toxic symptoms, as well as a certain degree of immunity toward subsequent injections. F. P. UNDERHILL (Am. Jour. of Physiol., Aug. 1, 1903), under the auspices of the Rockefeller Institute, conducted a series of new investigations in this field, which overthrow the conclusions obtained by Pick and Spiro, who maintained that it is possible to obtain by proteolysis (e.g., by trypsin, autolysis, alkali; with casein and edestin by acid also) typical albumoses and peptones which fail to show any influence upon blood-pressure when they are injected into the blood; and even the typical active products prepared by acid or pepsin-acid methods, lose this activity by a relatively harmless purification (treatment with alcohol) without undergoing a change in chemical character. Underhill's researches lead to the conclusion that there is at present no occasion for attributing the physiological effects following the injection of proteoses into the circulation to the presence of contaminating substances derived from animal tissue or elsewhere. Typical purified vegetable proteids which, when injected, are inert in this regard, yield on hydrolysis with acids, or even water alone, proteoses which provoke the characteristic reactions. The proteoses which are formed by the action of proteolytic enzymes of vegetable origin (bromelin, papain) or purified proteids, likewise alter in vitro the coagulability of the blood and call forth the other well-known symptoms of proteose injections. The proteoses occurring in nature in the vegetable kingdom are similarly active, as was to be expected if the toxic properties are a function of these products per se. No method of "purification" has been found which will deprive proteoses of this characteristic behavior in the circulation; when the chemical make-up of the proteoses is profoundly altered and they lose their chemical identity, the typical physiological action may also be lost. The author regards the failure of other authors to obtain toxic products by hydrolysis of proteids with acids, etc., as attributable, in part at least, to the fact that they injected mixtures of unknown composition and probably containing either insufficient doses of proteoses proper, or antagonistic compounds simultaneously present. Different animals vary in their susceptibility to the toxic action of injected proteoses, the rabbit being extremely resistant. There is at present no reason for denying the existence of many chemically unrelated substances which call forth apparently similar responses in the animal organism.

The Nature of Rigor Mortis.—Physiologists have generally attributed the onset of rigor mortis to the coagulation of the myosin contained in muscle. ORTO FOLIN (Am. Jour. of Physiol., Aug. 1, 1903) on the basis of his recent investigations, believes that this supposition is unwarranted. It was Kühne who first announced this hypothesis on the strength of the discovery that during rigor mortis the mother substance of myosin cannot be detected in the muscle. A serious obstacle to this view was the fact that rigor mortis, instead of being a permanent condition, gradually disappears, until Halliburton apparently explained it away by the statement that an enzyme, dissolving the coagulated myosin, thereby terminates the causation of rigor.

Folin brought about an artificial rigor in frogs' muscles by cooling them to -7° to -15° C. The muscles did not lose their translucency, which fact argued against any coagulation of part of the muscle having taken place. Moreover, on chemical examination of the muscle which had passed into rigor, performed by mincing the muscle, extracting the plasma by squeezing it and then heating the expressed plasma, the author found that the coagulum formed equaled in bulk the coagulum obtained in a similar way from muscle which had not passed into rigor. He therefore concludes that rigor mortis must be explained, not upon a chemical, but upon a mechanical basis, and might be regarded as of the same nature as an ordinary contracture. Lending support to this view is the fact that muscles sometimes spontaneously go into a condition of contracture. Of related interest in this connection is the view advanced, in 1901, by A. Spingarn, who, in a series of investigations on the inhibitory phenomena connected with striated muscle, was led to believe that such muscle, in the absence of the proper inhibitory influences, has a constant tendency to pass into a condition of contracture, of which the contractures due to heat, death, cold, spontaneity, toxins (cornutin, veratria, caffeine) and disease (Thomsen's disease) are different forms.

The Survival Excitability of Striated Muscle.—That a frog's muscle may preserve its excitability for strong induction shocks thirty hours after death, as stated by ERNST MANGOLD (Pflüger's Archiv., Vol. 96, Nos. 9 and 10) is not new, but the further discovery that the earlier or later onset of rigor or its disappearance, has no regular influence on the excitability of the muscle, is of extreme interest. The author also discovered the surprising fact that if a muscle, either cut out of the body or left in situ, be allowed to pass into rigor while kept in a physiological salt solution, its excitability, which until the onset of rigor has only slowly diminished, now suddenly undergoes a rapid reduction, as if caused by the mechanical obstacle to its contraction. In the average case the excitability continued after the disappearance of rigor for two to six hours. In harmony with the law that seems to underlie so many necrobiotic and paralytic phenomena, the author found that previous to the fall of excitability there is a remarkable rise. The temperature of 10° to 12° C. preserves the excitability for a particularly long time. The response of muscle to electrical stimuli occurs after the power of response to thermal stimuli has vanished. Contrary to what one would expect, it was found that disease or hunger preceding the death of the animal, rather than diminishing the duration of survival excitability, markedly increases it. The muscles of an embryo-dog, including the diaphragm, reacted fifty-one hours after death, the prolonged contractions resembling those characteristic of veratrin poisoning.

Insufficient Development of the Pectoralis Major Muscle, Absence of Nipple, Separation of Ribs, and Unusual Course of the Urethra—All in one Person.—The patient's deformities were discovered through mere accident, when he applied to ZEILIGER (Prak. Vrach, Nos. 26 and 27, 1903) with high temperature, general weakness and pains in several joints. The examination revealed entire absence of the right nipple and areola, and a general undeveloped condition of the right side of the chest as compared with the left; palpation demonstrated further that from the third and down all the ribs are free from any muscular layer, and are directly covered by the skin, so that the sternocostal part of the large pectoral muscle and the underlying pectoralis minor are absent. The right shoulder is raised, the right scapula is higher than the left, and there is slight

scoliosis of the thoracic portion of the spine toward the right. There is also considerable asymmetry between the right and left sides of the chest. The examination of the penis revealed a very small opening in the lower portion of the organ in the sulcus retroglandularis, from which the urine flows in a small stream. Besides this hypospadias there was entire absence of the urethra in the portion of the glans penis. Physical examination of the lungs and heart elicited pulmonary cirrhosis of the right apex. Patient had also evidently suffered when a child from tuberculosis of the bones. The other portions of the lung show emphysema, which is evidently of a compensatory nature, as brought about by the ready pliability of the right half of the chest which became thinner because of the absence of a considerable portion of the pectoralis major muscle. It was also frequently observed that the lungs were, as it seemed, protruding through the thinned-out walls of the chest, which fact alone would be sufficient to account for the presence of an obstinate alveolar emphysema. Notwithstanding the physical disadvantages under which the patient—a hard-working peasant lad—labored, he was not to any appreciable extent disabled from attending to his ordinary every-day work, and as soon as he recovered from the attack of acute articular rheumatism for which he applied to the hospital, he returned to his work.

The Hydrolysis of Fats by Means of Steapsin.—That steapsin is capable of hydrolyzing (saponifying) fats outside the organism, is shown beyond doubt by J. LEWKOWITSCH and J. J. R. MACLEOD (Proc. of the Royal Society, July 8, 1903). A few months ago, the former showed that lipase in acting on cotton-seed oil produces hydrolysis to the extent of three per cent. On the other hand steapsin causes hydrolysis to a very great extent. This fact is of considerable physiological importance, inasmuch as the quantitative experiments have hitherto been made almost entirely on monobutyrim and simple esters. It is shown that steapsin is not capable of producing the reversible reaction which it was thought, reasoning by analogy, this enzyme might produce.

The Adaptation of the Pancreas to Different Foodstuffs.—A series of experiments were conducted by F. A. BAINBRIDGE (Proc. of the Royal Society, July 8, 1903) in the hope of determining, firstly, whether the pancreas does adapt itself to different foodstuffs, as has been maintained, and secondly, by what means this adaptation takes place. When dogs are fed on milk the pancreas secretes a ferment, lactase, which is capable of inverting milk-sugar, although in dogs not fed on milk no such ferment is present in pancreatic juice. It appears, therefore, that the pancreas does adapt itself to different foodstuffs by modifying the composition of its secretion, at any rate as regards the enzymes. It is believed by Pawlow and others that this adaptation is carried out entirely by a nervous mechanism, and that a given food reflexly excites the pancreas to secrete a juice specially adapted for the digestion of that particular foodstuff. The same view has been adopted by Weinland, as regards the lactase of the pancreas. In the light of Professor Starling's work in "Secretin," it seemed much more probable that the adaptation was due to a chemical stimulus. Since lactase is normally present in the intestinal mucous membrane of adult dogs and is increased in amount by a milk diet, it seemed possible that lactase entered the blood stream from the intestine and was picked out by the pancreas and secreted. But the blood of a milk-fed dog was found to have no inverting action on lactose, nor did intravenous injections of extract of the mucous membrane of the intestines of biscuit-fed dogs cause any secretion of lactase in the pancreatic

juice. Consequently, the lactase of the pancreas is not taken up as such from the blood, but must be formed by the pancreas itself. Furthermore, the experiments show that the intestinal mucous membrane of milk-fed animals, injected into dogs not fed on milk, causes the pancreas to secrete lactase, whereas lactose or extracts of mucous membrane injected separately have no such action. In the present stage of this investigation no complete explanation of these results is offered. It seems probable that as a result of the action of the intestinal mucous membrane on lactose, some chemical substance is formed, which passes by the blood-stream to the pancreas, where it stimulates the latter to manufacture a specific enzyme—lactase.

The Optical Activity of the Nucleoproteids.—In a research conducted by A. Gamgee and A. C. Hill, it was discovered that hemoglobin is a dextrorotatory body, while the interesting histon-like albuminous substance globin, which is obtained by the splitting up of hemoglobin under the influence of highly diluted hydrochloric acid, is a normally levogyrous albuminous body. A GANGREE and W. JONES (Proc. of the Royal Society, Vol. LXXI, No. 473) find, as they had suspected, that the nucleoproteids of the pancreas, thymus and suprarenals, are dextrorotatory albuminous compounds. When a nucleoprotein, by the splitting off of albuminous molecules, which in its original condition formed part of its more complex molecule, becomes converted into a nucleoprotein of the "nuclein" type, its specific rotation increases. It is legitimate to infer that all the nucleoproteids form a class of dextrorotatory albuminous substances.

The Physiology of Fertilization, Parthenogenesis and Development.—In the course of a research undertaken to discover the substances in the egg that attract the spermatozoon, A. SCHÜCKING (Pflüger's Archiv, June 16, 1903) obtained many interesting results apart from the original inquiry, namely, as follows: In certain echinoderms the acid-reacting mass of eggs exerts a deadly, on brief exposure a paralytic, and when present in small amount, an agglutinating and attracting action on the spermatozoa of the same or of other species. The acid reaction of the extract of the egg mass with its mucous envelope is caused by the presence of primary potassium and sodium phosphate. On dialyzing this extract it is found that the non-dialyzable portion left behind contains the agglutinating substance. The egg extracts cause the same physiological effects upon the spermatozoa as the eggs themselves. The forerunners of fertilization are partly of a mechanical and partly of a chemical nature. The agglutination of the spermatozoa is brought about by the cooperation of the agglutinating substance in the egg with a special agglutinative substance in the spermatozoon. This phenomenon requires the presence of a certain amount of sodium chloride. It lasts only a short time for the compounds of agglutinin and agglutinated substance dissolves in water and cannot be again isolated. The spermatozoon does not bore its way into the egg, as commonly accepted, but its protoplasm melts into the protoplasm of the egg with the formation of a hyaline excrescence. Surrounded by the latter, the spermatozoon is drawn into the egg. The so-called disappearance of the vitelline membrane is not associated with the formation of a new membrane. Even when the protoplasmic mass appears homogenous, the vitelline membrane is present. It presents a meshy or sieve-like structure being pervaded with the finest of protoplasmic threads. During fertilization there is an interlamellar splitting of the vitelline membrane occasioned by the absorption of water. The increase in size by this absorption is con-

sideable, being not seldom one-third of the volume of the egg. The beginning of the development of the entire ovum is rendered possible by the absorption of water. In the case of the echinoderms studied, in other species and also in man, the spermatozoa show in their penetration of the egg, in individual instances, certain central bodies, which occasion the union of the protoplasm of the spermatozoon with that of the egg. There is no violent penetration of the spermatozoa. Fertilization finds its analogy in the conjugation of the infusoria. The interlamellar splitting of the vitelline membrane is commonly said to protect the egg against polyspermia. But this splitting also occurs in polyspermia if the protoplasm of the egg is damaged by external agencies. The functions of the tail of the spermatozoon are to bring the head to the periphery of the egg, to mechanically stimulate the protoplasm threads of the egg by means of the movements of the head, and thereby to bring about union with the protoplasm of the egg. Fertilization may also be brought about by tailless spermatozoa, provided these be brought into intimate contact with the egg. Eggs that are stimulated by means of external agencies offer resistance to osmotic influences. If placed in distilled water, eggs remain for a period of time amounting to several minutes, longer capable of life and fertilization than other eggs. This observation, together with that of the absorption of water in parthenogenetic development, gave the key to the solution of the problem of artificial parthenogenesis. This latter can be brought about by the most widely variant stimuli—chemical, thermic, electric and light stimuli. Following the period of stimulation there is a period of relaxation, during which the water that is absorbed can start the processes of development. Even the direct addition of water in such a manner that the eggs may remain in distilled water for one minute and thereby be allowed to swell up, start parthenogenetic development. The best results were obtained by the use of acetic acid, in the concentration of one to two drops in 200 gms. of sea-water, acting for a period of forty minutes. Also sodium bicarbonate is capable of initiating parthenogenesis.

Salivary Digestion in the Stomach.—The evidence that the action of ptyalin is inhibited in the stomach soon after the ingestion of food is inconclusive, according to W. B. CANNON and H. F. DAY (Amer. Jour. of Physiology, Aug. 1, 1903). The support for this evidence from the commonly accepted accounts of mixing currents in the stomach is not well founded. Observations show that in many animals, including man, gastric peristalsis occurs only in the pyloric end of the stomach; the cardiac end remains undisturbed by the waves. Food in the pyloric end is soon mixed with the gastric secretions, but food in the cardiac end of the stomach is not mixed with the acid gastric juices for two hours or more, and in this region, therefore, during that time salivary digestion may go on undisturbed. Examination of the dried contents of the pyloric and cardiac portions of the stomachs of cats, after carbohydrate food mixed with active saliva has been given, shows that the percentage of sugar present is about the same in the two portions at the end of a half hour, and at the end of an hour the cardiac portions contains about 80 per cent. more sugar in unit volumes than the pyloric portion. The actual amount of sugar present in the fundus is relatively much greater than the ratio would indicate, for the fundus contains, after an ordinary meal, about five times as much food as the pyloric portion. After an hour the ratio of the sugar percentages in the two parts of the stomach begins to approximate unity again. This change is probably to be attributed largely to

diffusion of sugar from the fundus into the pyloric end, and to some extent to absorption. The diffusion of sugar does not to a marked degree remove the ptyalin from the food. Position does not very notably affect the differences in sugar production between the two parts of the stomach, although with the fundus lower than the pyloric portion, slightly more sugar is found in the fundus than when the opposite relation is maintained. When liquid food is given, when small amounts of foods are given, and when the stomach is massaged, sugar percentages in the two parts of the stomach are nearly the same. Mixing proteid with carbohydrate foods protects the ptyalin from the action of free hydrochloric acid in the relatively small pyloric part of the stomach and on the surface of the cardiac contents. The greater mass of the food, lying in the fundus, undergoes uninterrupted autolysis, not because the proteid protects the ptyalin, but because the food in this region is not mixed with the gastric juice. Much of the starch not changed to sugar is changed to dextrin, and thus, since dextrin is not readily fermented, the food is saved to the organism. The special value of this process lies in the fact that it occurs to the greatest degree in the fundus, in which region the hydrochloric acid, inhibiting the action of many of the organized ferments, does not for some time make its appearance. In the early stages of gastric digestion, if food has been properly masticated, the fundus serves chiefly for the action of the ptyalin; the pyloric portion, after a brief stage of salivary digestion, is thereafter the seat of strictly peptic changes. Later, after two hours or more, as the contents of the fundus become acid, the food in the stomach as a whole is subjected to the action of proteolytic fermentation.

The Uniformity of the Pancreatic Mechanism.—It has recently been pointed out by W. M. BAYLISS and E. H. STARLING that the secretion of pancreatic juice, which ensues on the introduction of acid into the duodenum or jejunum, is due, not to a reflex, but to the production, under the influence of the acid, of a substance (secretin) in the epithelial cells of the mucous membrane. This substance is at once absorbed into the blood vessels and carried by the blood to the pancreas, where it acts as a specific stimulus of the pancreatic cells. The same authors (*Jour. of Physiol.*, Vol. 29, No. 2) find that the pancreatic secretin is not specific for each type of vertebrate animal, but is a simple substance of definite chemical constitution common to all types of vertebrates. On the other hand, in spite of certain assertions to the contrary, there is no doubt that it is specific in its origin and in its action. Apart from the increase of bile, which follows the injection of solutions of pure secretin, and may be direct or indirect, the direct action of secretin is limited to the pancreas. Of course, if a depressed effect is produced at the same time, one will get the usual effects of anemia of the medullary centers, amongst which salivation may be mentioned. Secretin is obtained by extracting the mucous membrane of the upper part of the small intestine with acid. From no other part of the body can secretin be obtained by a similar or any other mode of procedure. The authors tried in this way mucous membrane from all other parts of the alimentary canal, the salivary glands, the liver, spleen, pancreas, kidneys and tongue. They, therefore, conclude that prosecretion exists only in that situation where it is in a position to be acted upon by the acid chyme, and to discharge into the blood the body which shall act as the timely stimulus of the pancreatic cells.

The Regeneration of Nerve Fibers.—When certain precautions were taken, J. N. LANGLEY and H. K. ANDERSON (*Proc. of the Physiol. Soc., Jour. of Physiol.*,

Vol. XXIX, No. 1) found that in the sciatic and crural nerves, medullated fibers do not regenerate in the peripheral end of a cut nerve in 124 days. But medullated fibers may regenerate in the peripheral end without any connection being formed with the central stump; when such regeneration takes place the fibers degenerate on section of the nerves which run to the tissue surrounding the peripheral stump; i.e., the regeneration which occurs in apparent independence of the central nervous system is not really independent of it. When the peripheral ends of two sensory motor nerves are joined, no contraction occurs in the muscles supplied by one of them when the other nerve is stimulated, but when the muscular branch of the crural nerve is cut, and allowed an opportunity of growing both into its own peripheral end, and into the peripheral end of the internal saphenous nerve, stimulation of the saphenous nerve may cause a reflex contraction in the muscles supplied by the muscular branch of the crural; this is still obtained after section of the crural close to the vertebra, so that it is to be considered as an axon reflex occurring in branching fibers which have grown down from the central end. When the central ends of two nerves are joined together, it is not found that stimulation of one gives a reflex by impulses passing up the other to the central nervous system; i.e., apparently, union does not take place between the fibers, and neither nerve grows into the other. If a nerve is cut in a newly born animal, the nerve grows in length with the growth of the animal, although no union is formed between the peripheral and central ends.

The Presence of Arsenic in Eggs.—It has been maintained repeatedly by G. BERTRAND that arsenic, like carbon, sulphur and phosphorus is a constant constituent of the organism. He now finds (*Annales de l'Institut Pasteur*, July 25, 1903) that all parts of the hen's egg contain appreciable quantities of arsenic, the yolk containing the greater part. In the 1-200 of a milligram found in one egg, from one-half to two-thirds is found in the yolk. The enveloping membrane contains almost as much arsenic as the white. These observations confirm the supposition as to the existence and the probable rôle of arsenic in all living cells.

PEDIATRICS.

Determination of Fat and Solids in Milk.—To ascertain the relative accuracy of the simpler clinical methods of determining the fat, H. L. K. SHAW (*Archiv. of Ped.*, Aug., 1903) compared five methods, judging the results by the absolute fat as extracted by solvents (ether, gasoline, etc.). In the Babcock test 17.6 c.c. of milk are placed in a test bottle and 17.5 c.c. of sulphuric acid (sp. gr. 1.082) slowly added. These are mixed with a rotary motion, then centrifuged for four minutes. Boiling water is then added till the lower part of the column of fat comes within the scale on the neck of the test-bottle. It is again centrifuged for one minute and the layer of fat read off. The Gerber method proved to be inaccurate and clumsy, the Lefferman-Bean test troublesome and also inaccurate. The Holt cream gauge gives only approximate results and requires fresh milk in which the cream has not risen. The Marchand lactobutyrrometer is a graduated tube into which 5 c.c. of milk are put, a few drops of ten-per-cent. sodium hydrate solution added, then 5 c.c. ether and the whole gently mixed. When the mixture is homogeneous 5 c.c. of 93 per cent. alcohol is added, and carefully mixed. The tube is then immersed in a water-bath at 100° F. for fifteen minutes and the amount of fat read off from the scale. This is an easy method, but sometimes the milk coagulates when the alcohol is added. The extraction for standardizing

was made by Dr. Wheeler, chemist of the New York State Department of agriculture, by spreading the milk over absorbent paper, drying and extracting the fat in a Soxhlet apparatus. Of all these tests the Babcock was nearest the standard, the average error of 30 tests being only 0.07 per cent. and it is the simplest test that can be relied upon.

The total solids in milk may be obtained by evaporation and weighing, or estimated from the specific gravity and percentage of fat. The Babcock formula is to divide the two right-hand figures of the specific gravity at 60° F. by four, and add one-fifth of the per cent. of fat. This gives the total solids not fat. The Richmond scale is a double slide with specific gravity and lactometer readings for different temperatures. It is even more accurate than the Babcock. The amount of proteids can be approximately estimated by deducting 5.3 for cow's milk or 6.7 for human milk (the average amount of sugar and salts) from the total solids not fat.

Kidney Decapsulation in a Boy of Nine Years.—The patient, as reported by T. M. ROSEN and H. W. CUSHING (Archives of Pediatrics, Aug. 1903), was uremic, with general edema, ascites, nausea and vomiting. He voided daily 300 to 800 c.c. of smoky, acid urine of sp. gr. 1.010, and containing one-eighth to one-fourth per cent. of albumin and numerous hyaline, granular, blood and epithelial casts. The urea excreted was 5 to 10 grains in twenty-four hours. After the removal of 4,220 c.c. of turbid serum from the abdomen, the kidneys were decapsulated by the usual method, and were found to be enlarged and without cicatricial depressions on their surfaces. The capsules were not adherent. Five hours after operation the boy passed 30 c.c. of urine, and in the first twenty-four hours 62 c.c. containing 0.39 gms. urea and one-seventh per cent. albumin. Improvement was rapid, headache and nausea disappeared, and the edema subsided. On the seventh day the urea was 11.2 gms. in twenty-four hours, the patient passed 1,170 c.c. of urine and was comfortable. The albumin contained one-seventh per cent. From that time the picture changed. The temperature rose to 105° F., pulse fluctuated from 130 to 140, respiration 35, nausea and vomiting recurred, and death followed on the thirteenth day after operation. The urine had diminished to 230 to 350 c.c. a day with 3.6 to 4.6 gms. urea.

GENITO-URINARY AND SKIN DISEASES.

Prostatectomy Incision.—The proper perineal prostatectomy incision is made the subject of discussion by N. SENN (Jour. Am. Med. Assoc., Aug. 15, 1903). Sufficient exposure and complete drainage are the two essentials demanded of an incision, and according to the author neither of these are quite fulfilled by the incisions of Kocher or Zuckerkandl, with which he has had considerable experience. A new incision which obviates the difficulties and disadvantages of the others is proposed by him, representing in outline an inverted Y. The median incision is made in the usual way, laying bare the membranous portion of the urethra. The lateral incisions are carried from the lower angle of the median to a point half-way between the anal margin and the tuberosity of the ischium, cutting through about the same structures as are involved in the lateral operation for stone in the bladder. The wound is deepened by the use of blunt instrument and all bleeding carefully stopped. The rectum is then detached and the lower segment of the prostate exposed. After incising the membranous urethra on a grooved staff which is inserted into the bladder, the finger may be introduced into the prostatic urethra and the gland pulled forward. The cap-

sule is next incised and the author recommends removing one lobe of the gland at a time. Permanent drainage is then secured for the bladder by means of a soft rubber fenestrated drain, the distal end of which is fastened in the lower angle of one of the lateral incisions. The perineal wound is drained with a strip of iodoform gauze which is brought out alongside the rubber drain. The remainder of the wound is sutured and the bladder is kept practically empty by syphonage and may be irrigated daily. The gauze drain is left in about five days and the rubber drain remains until the urine is sufficiently cleared up.

Treatment of Constitutional Syphilis.—After discussing the theories held in regard to the action of mercury in syphilis, and the relative merits of administering it continuously, intermittently, or only when the symptoms demand, A. M. FORBES (Montreal Med. Jour., Aug., 1903) lays down the maxim "Begin treatment with mercury as soon as the diagnosis is reasonably clear, and continue until not only the sore but the last vestige of induration has disappeared and some weeks have elapsed without apparent evidences of infection." With a history of illegitimate coitus followed in due course by a sore with rapid induration and then enlargement of the neighboring lymph-glands it is waste of time to wait for secondary manifestations, especially as sometimes the rash is wanting in persons who afterward present grave visceral and other lesions. The internal administration is the most pleasant and convenient but the least effective. With Jonathan Hutchinson, he prefers the mercury with chalk, rather than the bichloride or protiodide, as it permits fair doses of mercury to be given without inducing poisoning or diarrhea, and it is not irritant. He begins with one grain three times a day for an adult and rapidly increases the dose. Mercury by inunction is a more rapid method of treatment, and white precipitate ointment will be found clearer and less irritating than the usually employed "mercurial ointment." The patient rubs a piece the size of a bean to a walnut into the skin of abdomen, axilla, groin or popliteal space, changing the site of application on successive days. With children the salve is placed on the abdomen, covered with a binder, and allowed to work in by the child's movements. The most prompt action and the surest dosage are gained by the hypodermic method. The author keeps powders of corrosive sublimate, each one grain which he dissolves in thirty minims of boiling water at the time of injection. He begins with five minims twice a week injected deeply into the gluteus maximus, and increases the dose till the full thirty minims are given. The process is painful, but abscesses are rare. For tertiary syphilis mercury is useless, but the iodides in heroic doses, though not curative, have a wonderful power to cause the disappearance of the swellings or effusions. In treating syphilis a mouth-wash should always be employed, and if sores in the mouth do not disappear under mercury discontinue the mercury and try a general tonic for a time. In the case of geographical tongue, abstinence from tobacco may prove satisfactory.

THERAPEUTICS.

Cure of Angioma Without Operation.—A modification of the method used by Fiorani in the treatment of angioma has been successfully applied by A. FRATTINI (Gazz. Osped., July 19, 1903) in 30 cases. This consists in painting the tumor with a preparation of corrosive sublimate dram $\frac{3}{4}$ (gm. 3) and collodion 2 ounces (gm. 50). The author proceeds as follows: A coating of this solution is painted upon the tumor, care being exercised that it does not spread much beyond the margins. After this has dried—the process

being hastened by blowing upon it—a second application is made, and perhaps a third and fourth according to the tumor's size. When the last coat has dried and the tumor is thus covered with a more or less hard crust, it is covered with absorbent cotton held in place by a bandage. The application is repeated in the same manner after an interval of three days; and, in the case of small angiomas, about three days after the second application the crust thus formed falls off and, as a rule, with it the angioma disappears, leaving but a small cicatrix. From three to four applications at intervals of three days are necessary to the cure of the larger angiomas.

Antistreptococcus Serum.—In a very readable article F. MEYER (*Zeitsch. f. klin. Med.*, Vol. 50, Nos. 1 and 2) reviews the value of the various antistreptococcal sera and proves that the serum of Aronson is really far superior to all the previous ones and that it holds out alluring promises for the future in the treatment of septic conditions, provided animal experiments can be looked upon as trustworthy criteria. Only those mice which were immunized against the streptococcus with Aronson serum, recovered from fatal doses; the sera of Marmorek and Tavel were absolutely without influence. The same was true when the serum was injected several hours after the infection, though much larger doses were then necessary. The serum of patients recovered from severe scarlet fever had the same immunizing power upon animals. The most efficacious method of administering the serum seems to be intravenously. Occasionally animals died some time after the serum had been given; the spleen here could not be looked upon as the organ where the germs had remained deposited since the same observation was made where this was extirpated. It seems likely that small thrombi enclose and retain the cocci until the action of the serum has passed off, when they rapidly regain their old virulence and destroy life at a time when all danger seems to have passed. It is thus obvious that the treatment must be prolonged for some time after apparent convalescence. It is difficult to get a clear idea how the serum acts, for it does not seem to influence growth in the culture tube. A bacteriolysis never occurs but merely a marked reduction of virulence, for cocci which have been left for some time under the influence of the serum, will no longer bring about hemolysis. The serum will no doubt demonstrate its value in the septic diseases of man to the same degree when physicians no longer wait till the patient is so low that he no longer reacts to anything else.

Antitoxin in Hay-Fever.—The further report on Dunbar's antitoxin is not altogether gratifying. Sir FELIX SEMON (*Brit. Med. Jour.*, July 18, 1903) reports in very great detail his observations on a series of eight cases which he had personally treated. In England, as here, the weather had been so cold that the usual crop of victims had not appeared in time to furnish material for an earlier report. Before the season opened he inquired of Dunbar and Prausnitz whether one should not in chronically recurring cases inject the antibody as a preventive. He was assured that it had already been tried in Hamburg with the result that in some people predisposed to hay-fever subcutaneous injections had been followed by a swelling of the arm into which the injection had been made, lasting for several days and accompanied by erythema and urticaria. It is obvious from this that the antitoxin as at present made must contain toxic or septic properties. Dunbar shares this view, for he says, "It must by no means be concluded that we may not succeed later on in freeing the antitoxin serum from these properties. It could be shown that while the power of the antitoxin increased, the by-effects not only did not rise proportionately but

rather diminished. From this I conclude that they have no direct relation to the specific antitoxic substance and that by removing these bodies the efficacy of the serum will not be interfered with. Inasmuch as these unknown substances were of a very powerful and as yet utterly unknown character, it seemed but fair to the public that it should not be made a possible victim to them, as was the case in the early days of cocaine usage. Repeated trials, however, seem now to have shown that such danger does not exist and that it is safe to place the drug in the hands of the patients for self-use." A ready-made preparation of the serum, called "pollatin," has been prepared which seems admirable. The following directions accompany each vial: A small quantity of the serum shall be carried by everyone expecting a hay-fever attack. Immediately on noticing the very first symptoms of irritation in nose or eye, a drop or two should be instilled upon the affected organ. Inasmuch as, by the very nature of the disorder, fresh doses of infection are continually being brought into action, and as a given amount of antitoxin is naturally exhausted very shortly by these factors, it follows that the treatment, except under the most favorable conditions, must be but palliative. In cases where the instillation has been followed by good results it is necessary to determine what part auto-suggestion had played. Occasionally the improvement is so very marked that it must in all fairness be excluded. In fine, the serum is not a panacea. It often gives relief in very early stages but rarely cuts short well-established attacks. Whether the use of a serum which, because of the removal of irritating bodies, may be given in greater and more frequent doses than the present one will increase the efficacy of this therapeutic agent remains to be seen.

The Use of Chloroform in the Preparation of Vaccine.—While glycerin exerts an action on vaccine whereby the extraneous bacteria are eliminated in the course of a few weeks, ALAN B. GREEN (*Proc. of the Royal Soc.*, July 8, 1903), finds that by the use of a solution of chloroform in distilled water, the extraneous bacteria of vaccine are eliminated in from one to six hours, the specific germ remaining fully potent for vaccination. The solution of chloroform that can be most advantageously employed in the preparation of vaccine is a saturated solution in distilled water, having a strength of 1 in 200. This is the limit of such solubility. The method of preparing the vaccine in this way is a complex one and need not be detailed here. The following are the considerable advantages alleged to be gained by the use of the chloroform process: (1) So speedy an elimination of the extraneous micro-organisms is attained that vaccine, practically free from such organisms, can be distributed for use within a few hours after its collection from the calf. In times of urgent demand for large quantities of vaccine, such as occur during smallpox epidemics, this process must needs prove of great value, since the necessity for waiting some weeks for elimination of extraneous organisms by glycerine will be done away with. (2) In so far as the vaccination value of vaccine depends on the activity of a living organism, deterioration of that value must occur in the course of a longer or a shorter time. The potency of some vaccines, glycerinated or otherwise, becomes greatly impaired within a few weeks of collection, that is, within the time required for glycerin to exert fully its influence in eliminating extraneous organisms. Some of the vaccines may, at the time of their collection, have possessed a high vaccination value. (3) For a similar reason the chloroform process might be of considerable use in hot climates, where the preservation of the potency of vaccine is frequently a matter of considerable difficulty.

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THE PROPOSED NEW WATER SUPPLY FOR GREATER NEW YORK.

THE awful lesson of Ithaca has not yet been forgotten; hence we cannot overlook the sanitary aspects of the report of the special commission on water supply which is about to be presented for public consideration through Mayor Low. The full text of this report is not yet obtainable. We are informed that it recommends an intake of Hudson River water at or near Poughkeepsie. Three years ago, in the fragrant time of Ramapo, a survey of possible sources of water supply for the growing metropolis was made under Comptroller Coler's auspices; and about the same time a report was published by the Merchants' Association. The availability of Hudson River water was fully discussed at that time; but the demand of the hour was for facts concerning gallons and dollars, and the minor questions of disease and human life were left in the background. It was all but tacitly assumed that the use of polluted river waters was unobjectionable, provided only the scheme of supply included somewhere a method of filtration.

By means of a Poughkeepsie intake, the city of New York could be supplied daily with a quantity of water variously estimated at from 800,000,000 to 1,500,000,000 gallons. Quantity is a

desideratum, and the Hudson River at once commands attention; no other possible source offers a greater volume of water. The upper Housatonic would supply a sufficient quantity of water at a greatly reduced cost; but the Hudson River is in New York State and the Housatonic is not. The latter could be controlled only with the consent and cooperation of the legislature of a neighboring State, and even with such cooperation serious legal obstacles to purchase and control would remain. A readjustment of State boundaries is scarcely to be thought of in this instance, though such a readjustment for similar purposes was effected some years ago by Massachusetts and New Hampshire. The Adirondack region is, indeed, geographically available; economically it is excluded, for the cost of an Adirondack system would be double that of the proposed Hudson River works.

The successful filtration of Hudson River water is scientifically possible. Is it politically probable? The adoption of the Poughkeepsie plan should at all events be preceded by a careful consideration of this question. Public works have a moral as well as a material foundation. Wisdom in the plan of supervision is of incalculable value in such enterprises. The use of Hudson River water without adequate purification would reduce New York from its present sanitary rank to a position which public-spirited men would regard as degrading. Now is the time to remember that a public water supply is a public danger.

The Hudson is a foully polluted stream. The wholesale contamination of this body of water begins in the Mohawk Valley. Amsterdam, Schenectady and Cohoes utilize the Mohawk for their water supply and for the disposal of sewage; the typhoid rate of all three cities is relatively high. The typhoid rate in Schenectady is 100 per 100,000; in Cohoes it is 90, in Amsterdam 52. The New York City rate is only 17, and that of Yonkers only 16. The typhoid rate in Albany is still very high, though much reduced since the introduction of filtration. It is scarcely necessary to recapitulate the fifty-odd towns the sewage of which is discharged into the Hudson. It is sufficiently enlightening to point out that from 1890 to 1899, the typhoid death-rate of the maritime counties of New York State was only one-third as great as that of the Hudson Valley.

On the Merrimac River, Lowell and Lawrence needed the terrible epidemic of 1890-91 to enforce the lesson of the danger of polluted river water.

For each ten thousand lives exposed in that time of peril, New York might endanger its million, and it will indeed imperil them if the proposed Hudson River works should fall into the hands of recklessly selfish, incompetent political partisans. Experience teaches that such a calamity is likely to occur at any time in our political affairs.

Under ideal conditions New York would always own its own watershed and would keep it clear and uninhabited. If this is no longer possible, we must at least insist that the city's storage and filtration plants be administered by men of advanced knowledge and of the highest integrity, fully impressed with the weight and dignity of the task of standing guard over the lives of a multitude. A polluted water supply is a merciless public enemy; let us avoid it if we can—outgeneral it we must.

"WHERE THE BEE SUCKS."

It has often been said, that there is nothing new under the sun, but if this is true, the sun, in these days of modern discoveries, must have swerved enough from its point of fixation to have rendered visible things that were unseen in our childhood's hour. Thus, we remember in the days of our youth a short and rather illicit poem, that stated didactically, that "God made bees, and that bees made honey." Here, however, all reference to their usefulness ceased, and the subject has been generally considered a closed one, until it has been renewed and amplified by one Dr. Perc, of Marburg.

According to this latest apiarial authority, the chief practical aim and object of the busy little bee, is not, as we have been hitherto taught, to improve each shining hour, by gathering honey all the day from every opening flower, but to utilize, what has been christened in the vernacular, his "business end," in the cure of all sorts of rheumatic ailments, but more particularly those of the articular variety.

How the poison of the sting effects a cure, this "Bee Man" does not state. It may be that there is some special virtue in the venom, or it may serve as a general counter-irritant, but from the fact that he claims that "every organism is made immune from bee poison, and also immune from rheumatism," we imagine that it acts—or that Dr. Perc thinks that it acts—empirically, from some peculiar virtue inherent in itself.

What he loses in theory, however, he certainly makes up in practice, and his directions are sufficiently explicit. He permits his patients to be

stung at first by a few bees, and then gradually increases the number until the treatment becomes, like the language from the bunk of the friend and partner of *Truthful James*—"both painful and frequent and free." The stings are "inserted," he says, "near the joint of the muscles affected," but here the description of the technic of his operative measures is obscure, as he does not state how the bee is induced to implant his sting at any indicated spot, in any particular region. The insects, it is true, might be lured there, by smearing the parts with honey, but leading a horse to a well does not always end in his drinking, and as Dr. Perc allows seventy stings "at one sitting," his patient's joints must resemble the Psalmist when they compassed him about like bees.

As to the cases that he reports in support of his discovery, one perhaps will be sufficient to indicate his general method of treatment, and will serve to show that even the victims of the most advanced stages of rheumatic disease, need not despair, provided only that they are willing to submit to the by no means homeopathic "course of cure." The case quoted, is that of a woman, age not given, "who suffered excruciating torture from rheumatism." The usual remedies had been tried by other physicians, without success. The salicylates had proved inert and useless, while blisters and counter-irritants had rendered matters worse, and had only served to increase her suffering and discomfort. At this juncture, she came under Dr. Perc's treatment, and, despairing of alleviation by any other method, placed herself unreservedly under his direction and control. From the time of the first application of the remedy her condition steadily improved, the pain grew gradually less, as the number of stings was increased. The inflammation abated, each joint became more flexible and mobile, one by one, as "some bee had stung it newly," until she became at first convalescent, and then, according to the report, finally cured. This happy state of affairs, however, was not the work of a single day, nor yet of a single bee, while the strength of will of the patient, with her belief in the ultimate success of the treatment, was as marked as that of her less fortunate biblical sister, who had in vain wasted her substance on physicians. For the number of times that she was stung, while en route to recovery, made a grand total of 6,952 stings, which, as Dr. Perc, with unconscious naïveté, remarks, was a sufficient number to insure a complete success.

As to Dr. Perc himself, he has our respect and our esteem. He is blessed with the courage of his convictions, and it is quite evident, from the *London Mail*, that he has resisted all temptations to belong to other nations, and has remained an Englishman. Thus he does not claim that John the Baptist, who dragged out a nomadic and hoboic existence, and who would have been most naturally and constantly stung by bees, in the struggle for his daily honey, was immune from rheumatism on that account. Neither has he as yet laid felonious and uncopyrighted hands on the pertinent advertisement of his American colleagues that his particular remedy "will cure hives and is nice to eat on bread." For these two mercies we can certainly be thankful and if he can succeed in lessening the arthritic pain and anguish of the British public, he should, at least, be not without honor in his own country.

We do not believe, however, that this Theodore Thickthong method will prove a success in the States. The supply of bees could doubtless be increased by raising them in large quantities, so that the price, per thousand, would be decreased.

But the remedy itself is too strenuous and able-bodied to meet with popular approval, and we fear, bad as the evils of rheumatism undoubtedly are, that when it came to the question of to bee, or not to bee, the average thin-skinned American would rather bear the ills he has than fly to those he knows not of.

PRESENT LIMITATIONS OF MEDICAL SCIENCE.

THE beginning of the new century was marked by many eloquent essays upon the brilliant achievements of the hundred years that had just passed and the physician was not the least proud of the scientists to realize how his profession had emerged from a period of superstition into one of enlightenment and progress. Much, very much, no doubt, has been accomplished, but it is timely for us to check our enthusiasm and modestly to acknowledge that much is still terra incognita, awaiting the master mind, not so much for renewed research along the old lines, but for entirely new methods. In pathology and bacteriology especially we seem to have come to a standstill, for, aside from the practical application of the principles of immunity, little of far-reaching importance has been achieved during the last few years. We need but review the long list of important diseases in man and animal, undoubtedly of bacterial origin, but as yet with unknown eti-

ology, to realize with dismay that the enormous amount of laboratory work done all over the civilized world is really without avail and that with the methods at present at our disposal, complicated and time-robbing as they are, we have reached a certain stage and do not seem to advance beyond it. We are to-day almost as ignorant of the germs of scarlet fever, measles, rubella, syphilis, mumps, acute yellow atrophy of the liver, beriberi, noma, Landry's paralysis and a host of other diseases as we were in the days before Koch, and yet hundreds of brilliant minds have spent an untold amount of time and labor in their study.

Truly, Nature does not readily give up her secrets and the time for resting upon our laurels is still far off.

Yet, far from discouraging, these facts will but stimulate to further thought, and already the future holds out many promises. Bacteriologists are becoming conscious of the fact that they must be zoologists as well and that the great group of protozoa may yet be destined to play a more important part in human pathology than at present appears. Much, too, can be expected from more powerful microscopes, for the germs of many diseases are known to pass through the pores of the Berkefeld filters so that a magnification of 2,000 or 3,000 diameters will hardly reveal their presence. And, indeed, a discovery of most promising result is already announced by two Jena professors, H. Siedentopf and R. Zsigmondy (*Annal. d. Physik*, Vol. X, 1903), who seem to have solved the chief difficulty of higher magnification by increasing the illumination of the particles to be examined. Owing to their minuteness, these exert no material influence upon the vibratory period of the light waves and hence appear to the observer as self-illuminating or luminous objects by virtue of their reflected light. Since, however, the reflected light is weaker than the original illuminating beam, it is necessary, in order to secure the advantages of an intensified illumination, to employ the principle of dark-field illumination. This principle is well illustrated by the common phenomenon of the "visible sunbeam" in a darkened room which is penetrated by a ray of light. Dust particles hitherto invisible, can readily be perceived when the eye of the observer is at right angles to the direction of the penetrating ray. If now the illumination is strengthened by employing a more powerful source of light and a condensing lens and the power of the eye is aided by means of a microscopical objective, we have all

the essentials for rendering visible ultramicroscopic particles. By means of their apparatus, the two Jena professors have seemingly accomplished what the great Helmholtz did not conceive as possible. This physicist declared the limit of microscopic perception to be 0.0001 millimeter, while now this limit has been extended to from 0.000004 to 0.000007 millimeter. That such an achievement promises great things in scientific investigation is readily seen.

ECHOES AND NEWS.

NEW YORK.

Dr. Curtis Acting Dean.—Dr. John G. Curtis, for many years professor of physiology, has been appointed acting dean, to supply the vacancy at the College of Physicians and Surgeons created by the resignation of Dr. James W. McLane.

Trachoma Hospitals.—A new hospital for the treatment of trachoma patients from the public schools will be established by the Board of Health some time in October at One Hundred and Eighteenth street and Pleasant avenue. It is the plan soon to establish another trachoma hospital in the Bronx and a third in Brooklyn.

Tuberculosis Handled by the Board of Health.—Within a few months victims of consumption will be treated free in a building now being erected by the Health Board on a lot just south of its building in Sixth avenue. The plan is to care for them here until they are in a condition to be sent away to some sanitarium. The success of the open-air treatment at North Brother Island, which was established this summer, had been even greater than was expected. One woman had gained more than twenty pounds, and all the 65 patients were wonderfully improved.

Governor Odell and State Institutions.—In a speech recently delivered at Geneseo, N. Y., our worthy Governor, unconsciously confessing the most indefensible part of his administration, said: "Extravagant buildings and useless, high-salaried officials add nothing to the efficiency of treatment in our hospitals or to secure a more efficient administration of our State departments. Such a misuse of public moneys is extravagance deserving of condemnation." His omission to explain the retirement of the local Boards of Managers is noticeable. To the members of these boards the above remarks do not refer, since their offices were filled without salary or even the prospective emolument of political patronage or power. Their notions of the purposes of State charitable institutions were at variance with those of Mr. Odell. He found them with ideas narrowly centered upon the improvement of the unfortunate patients, indisposed to scan the political horizon or give proper respect to his machine.

Physical Education at Columbia.—The increasing prominence of school hygiene as a field of instruction is indicated by the announcement that Columbia University has formed a department for the study of physical education in the several gymnasiums connected with the University. The scope of the work can best be shown by the outline of a single course, "Hygiene A." The aim of the course is to give the student instruction in the principles governing the care of the body, to the end that the highest degree of mental and physical efficiency may be ob-

tained. The body will be studied as an organism and as a machine. The study will not be from the standpoint of anatomy or physiology; only a broad outline of the structure and functions of the body will be given, and that only as a basis for the application of hygiene. The course will include a full discussion of the following topics: Muscular activity, its uses, its aims, its methods, and the relative value of the various forms of exercise, general and special; feeding, nutritive value of various foods, relative value of various beverages, the effects of alcohol on the organism, dietaries, and the abuse of stimulants and narcotics; sleep and rest, the expenditure and recuperation of energy, the general regulation of nervous activity; bathing, fresh and salt water bathing, sponge, tub, shower, douche, and plunge baths, thermal baths, the value and danger of the morning cold bath; clothing, heat radiation, conservation of energy in the body, uses of clothing for protection and adornment; sanitary conditions of the home, the site, construction, plumbing, heating, and ventilation; the adaptation of man to the changed conditions of his environment in the cities during the last one hundred years, the change from outdoor to indoor life, the greatly increased demand for nervous energy, with a corresponding decreased demand for muscular energy; the influence of heredity, extent to which mental, moral, and physical characteristics are inherited; the influence of climate on the organism, acclimation, organs most affected by different climates, tropical, cold, temperate, dry, moist climates, fertile and sterile soils, sea air and mountain air, healthful and unhealthful climates; protective measures against infectious diseases, the germ theory of disease, communicable and contagious diseases, immunity, serums, vaccination, boards of health, duties of citizens concerning quarantine regulations, water and gas supply, inspection of milk and foods. A course by Professor Wood will treat of the physical organization of the child; laws of heredity, growth, and development; home conditions necessary to the child's health; school environment; functions of the school physician; prevention of disease and deformity by hygienic surroundings, healthful postures, and activities; adaptation of gymnastic exercises to the different grades; and the regulation of athletics. The medical director, in addition, will hold office hours daily, acting as a consultant and advisor to any student seeking his services. Each student will be entitled to a physical examination, on the basis of which the general hygienic regimen and physical exercise best suited to his peculiar needs will be prescribed.

PHILADELPHIA.

Suicide Increasing in Philadelphia.—Statistics recently published show that for the years 1892 to 1901, inclusive, Philadelphia was twenty-sixth on the list of 50 cities as regards the number of suicides. For the year 1902 Philadelphia is twenty-fourth in the list, the increase being from 11 to 13 per 100,000. The figures for 1902, however, do not agree with those of the coroner who in his annual report, states that inquests were held in the cases of 203 suicides, which would be a ratio of 15 per 100,000.

Further Action Against the Alba Dentists.—Attorney-General Carson has directed a writ against the Alba Dental Company of this city requiring that corporation to show cause why it should be allowed to practise dentistry in Pennsylvania. This proceeding follows the recent conviction and sentence of the president and manager for having employed stu-

dents who were not licensed dentists. It is alleged that the corporation is not exercising any of the objects authorized by its charter and that the president, although he owns 98 of each 100 shares of stock, is neither a dentist nor a physician. The company has 11 offices in this city:

New Hospital in Coatesville Dedicated.—The new public hospital which has just been completed in Coatesville was dedicated August 29. The building is erected on a high hill in the southwestern part of the borough and is 100 by 80 feet in size. It contains three large wards and ten private rooms. The total cost was over \$30,000, a considerable portion of which was donated by Mr. and Mrs. Charles L. Huston, who for the past four years have maintained the Huston Memorial Hospital at an annual expense of \$6,000. The rapid growth of the town rendered this hospital inefficient. Both regular and homeopathic physicians will be on the staff of the new hospital.

Library of the College of Physicians.—Dr. F. P. Henry, honorary librarian of the College of Physicians, of Philadelphia, has written for the *Ledger* an interesting historical sketch of the library of that institution. The library, which is the second greatest medical library in the world, was begun in December, 1788, when Dr. John Morgan, the founder of the Medical Department of the University of Pennsylvania, presented to the college 24 volumes. The number of volumes is now 67,243, many of them being exceedingly old, first editions, and practically invaluable. Dr. Henry states that in one particular, at least, this library is first of its kind. This point is the extreme liberality of its management. It is not only open to every one, whether physician or layman, for consultation, but the Fellows of the College have the privilege of taking out books for two weeks, and extending the time, if the book has not in the meantime been asked for, to two weeks more. There is but one restriction to non-members, namely, that they must present a card or note of introduction to the librarian from one of the Fellows of the College. This rule has proved satisfactory to all parties concerned. With the new building, which the Carnegie Fund of \$50,000 has made possible, the library of the College of Physicians will begin a new era of usefulness.

CHICAGO.

Typhoid Fever.—During the last week the increasing demand for laboratory examination of suspected cases of typhoid fever has been noticeable, although the hospital reports and the typhoid mortality do not show any such increase. On the contrary, the number of cases in hospital remains about stationary, while there were but 17 deaths from the disease reported as against 53 for the corresponding week last year.

Smallpox.—Of the twelve cases of smallpox removed to the Isolation Hospital during the week, six contracted the disease from an unreported convalescent found in the rear of a saloon. Ten of the 12 cases had never been vaccinated; 2 had imperfect vaccination marks more than twenty-five years old. The type of the disease this year is much more serious than last year.

Changes in the Laboratory Force.—The process of reorganization in the Chicago Health Department began last week with the temporary appointment of Dr. J. F. Biehn as assistant bacteriologist, succeeding Dr. L. A. Kierulff, resigned, and the temporary detail of Dr. George E. Masslich as city chemist, in the absence of City Chemist D. B. Bisbee. While

both of these appointments affect only the city laboratory they are regarded as the forerunners of a sweeping change.

Chicago the Virile.—Of all the larger cities of the country Chicago has the largest proportion of males in its total population. During the last twenty years Chicago has averaged 5.3 per cent. more males than females, while New York has averaged 2.8 per cent. more females than males, Philadelphia 5.7 per cent. and Boston 7 per cent. more females than males. Not only this, but Chicago's male death-rate is the lowest of the four cities—Chicago, 20.5 per thousand; Philadelphia, 22.9; Boston, 23.5; New York, 27.1, being the averages of the three Federal Census years 1880, 1890, 1900.

Willard Hospital in Chicago.—Directors of the Frances E. Willard National Temperance Hospital have decided to erect a \$75,000 hospital in Chicago. The building will be the culmination of nineteen years' work on the part of the Directors, all women, and will crown the efforts to treat diseases without the use of alcohol. The building will be five stories high, and one of the wards will be dedicated to the use of the Loyal Temperance Legion, a society of children. The staff of the hospital includes prominent members of three schools of medicine.

GENERAL.

More Plague in Peru.—Three new cases of bubonic plague are reported in Pacasmayo, one in Molendo and two in Lima.

Fasting as Cure for Dyspepsia.—Ex-Judge Ellis, one of the best-known lawyers in western Kansas, died last week at his home in Platt. He had followed a theory of fasting to cure dyspepsia and had gone thirty-seven days without food.

Molasses and Murder.—Five natives were murdered in August on Diomedes Islands, in Behring Sea, in consequence of a frightful orgy among Eskimo, following the sale to natives of molasses by whalers. The molasses was utilized for the manufacture of a fiery liquor called "hatch." Under the influence of this intoxicant usually calm and peaceful natives become like maniacs.

Dr. White Appointed.—William A. White, first assistant physician at the Binghamton State Hospital, has received from the Secretary of the Interior the appointment as superintendent of the Government Hospital for the Insane, at Washington, vice Dr. Alonzo B. Richardson, who died on June 27 last. Dr. White, who is thirty-three years old, is recognized as one of the foremost alienists in the United States. He will leave within a week to take up his new duties.

Army Sanitarium Inspection.—Surgeon-General O'Reilly of the United States Army, and W. B. Jansen, of the Atchison, Topeka and Santa Fé Railway, have returned from a tour of inspection of the army sanitarium at Fort Bayard, N. M. Montezuma Hotel, at Las Vegas Hot Springs, owned by the railroad company, had been closed for lack of patronage, and may be turned over to the United States Government for sanitarium purposes. It is understood that the Surgeon-General favors the plan.

Attacks Census Figures.—F. L. Hoffman, of Newark, University Lecturer on Actuarial Subjects, at the Fourth International Congress of Actuaries, which met in New York during the current week, paid his respects to official statisticians in the United States, especially to the Census Bureau. "When we are told," he said, "by a Secretary of War that the mortality of the army in Cuba was not greater than that of the City of Washington we do not need large

actuarial knowledge to smile at the statement and dismiss it as without statistical value—a misleading item disseminated to an ignorant public for political purposes.” The United States Census Bureau, Mr. Hoffman declared, though not now “in such atrocious shape” as it had been before it became a permanent department, was “very far from being such as to give its statistics value as contributions to science.” The bureau needed, said Mr. Hoffman, the services and advice of expert actuaries.

A Great Problem Settled.—The problem of epilepsy is admittedly one of great antiquity. We are tolerably sure that it has deeply puzzled physicians in all countries since the days of Hippocrates. The individual, therefore, who has the power of suddenly knocking the lid off the mystery box and showing us at a glance “epilepsy shorn of all mystery” is entitled to our best obeisances, to say nothing of our debt of undying gratitude. It appears that the honor of such a discovery belongs to a young physician who confesses in a recent article on “What Is Epilepsy?” that “there is nothing mysterious or even enigmatical about the disease.” He goes on to prove to his own satisfaction that epilepsy is caused by vasomotor spasm that results finally in auto-asphyxia. Auto-intoxication in turn causes the vasomotor spasm. One wonders at the writer’s seeming inconsistencies, for after asserting that “there is nothing mysterious or enigmatical” about epilepsy, he concludes as follows: “And if we could but lift the curtain which hangs behind the vasomotor spasm, I believe that the long-sought cause of epilepsy would stand revealed.” Is the cause of scientific medicine ever advanced by flashes of inconsistencies as great as these?

Tuberculosis Aid and Education Association.—A new association for the alleviation of tuberculosis and the education of the community hopes soon to commence active work in Cambridge, Mass. Its constitution says: “This Association shall be called the Tuberculosis Aid and Education Association,” the object being, “To cure at home, if possible, persons suffering with tuberculosis; to relieve with food, as far as possible all needy tuberculous persons; to educate the entire community in the care and prevention of this disease; to promote the establishment of hospitals for hopeless cases.” A deep interest is being awakened in the community, and representative men and women are to be found on the Board of Managers. The Advisory Expert is Dr. Edward O. Otis, of Boston, an eminent lung specialist, at one time President of the American Climatological Association. Dr. J. L. Hildreth, a prominent physician, is chairman of the Advisory Board, consisting of twelve physicians who will advise the Board of Managers on medical matters. A trained nurse will care for such cases of the poor as need her attention, free of expense, giving instructions as to the disposition of sputum and the formation of healthful habits. Various committees will have charge of the distribution of food, of lectures, of sanitation, etc. The movement is intended to be largely educational and for this reason there will be on file, open to the public, reports from other organizations working along similar lines, reprints from papers read by physicians before medical and other societies, and pamphlets descriptive of public and private sanatoria. The committee will be grateful to physicians and others, who will donate any of the above. If possible, they would like three copies, one for the library, one for a special room devoted to advisory conferences, and one for private consultation by the Board of Managers. While it

is not the intention of the association to become an advertising medium, the committee in charge of outlining the work, feel so deeply the value of sanatoria treatment in the early stages of the disease, that they wish to put themselves in touch with such institutions. They feel that such a collection of information will be invaluable to physicians in advising patients to try a climate peculiarly fitted to each case. With the booklet from sanatoria it would be well to send a brief description of the shortest route of travel between Boston, Mass., and the sanatoria, hotel or boarding house at which tuberculous persons are received, and the price for board or treatment.

Ithaca and Typhoid.—Dr. G. A. Soper, special consulting expert of the State Health Department, in connection with the Ithaca typhoid epidemic, has resigned that position. Dr. Soper says that typhoid would be stamped out at Ithaca if the local authorities would follow his instructions, but they have not even appointed a Health Board to succeed the officers who recently resigned.

The Milk Problem.—The Agricultural Department at Washington has made a contribution to the general discussion on the quality of milk supplied to cities, a bulletin, a large part of which is devoted to the question of transportation. The bulletin says the agitation of the question of impure milk has resulted in improved practices on the part of persons handling this article of food, but there is still much room for improvement. For instance, attention is called to the fact that the ideal vessel for the conveyance of milk remains to be discovered. There are many cities and towns which have no legal regulations whatever concerning milk. Many suggestions are made for the improvement of the milk supply, among which are the following: (1) The registration of all dairies; (2) official endorsement of properly conducted dairies; (3) inspection of all herds, barns, and dairy buildings once a month; (4) better lighting, ventilation, drainage, and cleanliness of cow stables; (5) whitewashing the interior of stables; (6) eradication of tuberculosis from dairy herds; (7) branding of condemned cows; (8) pasturage for city cows; (9) aeration of milk in pure air; (10) prompt cooling of milk and holding it at a low temperature until final delivery; (11) shipment of milk from farms promptly after milking; (12) delivery of milk and cream in sealed packages. It is noteworthy that these recommendations correspond very closely with those formulated by the Milk Commission of the Medical Society of the County of New York.

Autumnal Typhoid and the Oyster.—A recent issue of the *British Medical Journal* contains an official report by Dr. H. T. Bulstrode on the outbreaks of typhoid fever attributed to raw oysters, which followed two of the municipal banquets of last year. On November 10 last, Mayoral banquets were given at Winchester and Southampton, towns a considerable distance apart. Each banquet was followed by an outbreak of illness among the guests, as nearly identical in diagnosis and clinical history as possible. In both cases the percentage of guests attacked was about the same, and included only those who had partaken of raw oysters. None of those who did not eat oysters became sick. A close inquiry established the fact that the only dish of which all the guests attacked partook was the oyster course. The oysters served at both banquets came from the same source, Emsworth, on the same day and, presumably, from the same bed. At Winchester 62 out of 134 guests were attacked, of whom 10

developed typical cases of typhoid fever, the remainder escaping with what might be called abortive attacks. At Southampton 55 out of 132 guests were attacked, and 11 developed typhoid fever. The marked increase in typhoid fever in most cities during September, largely among those who have returned from the country, and are supposed to have brought the infection with them, suggests the inquiry whether indulgence in sea food may not account for this rise in the enteric curve every autumn.

Obituary.—Dr. George B. Russell, one of the oldest and best-known physicians of Michigan, died at his home in Detroit August 31, aged eighty-seven years. He was born in Russellville, Chester County, Penn., and did fearless work during the cholera epidemic at Philadelphia in 1836 and in the outbreaks which raged in that city in 1844 and 1845.

Dr. Alexander Montague Atherton, twenty-eight years old, died at Liberty, N. Y., August 28. Dr. Atherton was born in Honolulu, H. I. He prepared for college at Pimaho Academy, Honolulu, and afterward was graduated from Wesleyan University at Middletown, Conn. Later he studied medicine and obtained his degree from Johns Hopkins University in 1901. He won a service in the City Hospital, Blackwell's Island, New York, where, during his internship, his health began to fail.

Dr. William C. Barrett, dean of the dental department of the University of Buffalo, died in Nauheim, Germany, on Sept. 2. Dr. Barrett went to Nauheim on account of dental trouble, with which he had been afflicted for about a year and which caused his death. Dr. Barrett was one of the best known dentists of this State. He was a member of the American Medical Association, a former president of the Dental Society of the State of New York and a member of the American Microscopical Society.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Own Special Correspondent.)

LONDON, August 22.

DEATHS OF EMINENT PHYSICIANS—LORD SALISBURY DYING—MEDICAL LEGISLATION.

THE medical profession of this country has within the last week or two lost two of its most distinguished members. Dr. William Smoult Playfair, who died on August 13, was for many years the leading obstetrician in London. He was a brother of Lord Playfair, who was for some time professor of chemistry in the University of Edinburgh and afterward played a considerable part in Parliament. W. S. Playfair, was sixty-seven years of age, after taking his degree at Edinburgh in 1856, went to India, where he served during the Mutiny. The climate, however, did not suit him, and he returned to Europe. He determined to try his fortune in London, where he settled in 1863. He used to say that he came here, an utterly unknown man, all his worldly goods being represented by a capital of five thousand dollars. He had the good luck to be appointed professor of midwifery in King's College and obstetric physician to the hospital attached to that institution. At that time the influence of that consummate surgical artist, Sir William Ferguson, was paramount at King's and Playfair doubtless owed his appointment largely to his "brither Scot." He made good use of the opportunities of learning his work afforded him by the hospital and became, in the elegant

phrase applied by Ferguson to his predecessor, Priestley, a most successful "fumbler of aristocratic vaginas." Among his patients were several members of the Royal Family, including Her Imperial Highness the Russian Duchess of Edinburgh. Some years ago, however, Playfair, for some reason, lost the greater part of his royal connection, his place at the bedside of parturient princesses being taken by Sir John Williams. It was said that Playfair's fees were considered too high, and this may possibly have been the case, for royal personages are apt to look upon the mere honor of ministering to their august persons as in itself a sufficient reward. Whatever may have been the cause, Playfair certainly lost the favor of the Court. Hence he remained plain "Dr." Playfair, having the mortification of seeing titles and distinctions showered on the man who was preferred to him. There can be no doubt that Playfair was hardly dealt with. Apart from his services to royalty, his professional eminence fully entitled him to one of the titular decorations by which merit is recognized in this country. Whatever chance he might have had of such distinction was, however, destroyed by the famous trial in which he had the misfortune to be the most prominent figure a few years ago. As the case is a *cause célèbre* in the annals of British jurisprudence, and as the result makes it of momentous importance to all members of the medical profession, it may not be uninteresting to recall its principal features.

An Australian lady who had married a brother of Playfair's wife consulted him about certain symptoms. He examined her under an anesthetic and came to the conclusion, as she was not living with her husband at the time, that she had misconducted herself. He communicated his suspicion to his wife, who in turn told it to a relative who was making the lady concerned a considerable allowance. This was discontinued, and the lady and her husband brought an action against Playfair for slander. Her cause was pleaded by Mr. Lawson Walton with such ability that the jury awarded the unparalleled damages of \$60,000. By a settlement arrived at later between the parties the amount was diminished to \$46,000, but the damages remained a "record" in our courts, till the other day, when in a divorce case the same advocate got for the wounded honor of an outraged husband the substantial compensation of \$1,250,000. Dealing with the question of professional secrecy, the judge, Sir Henry Hawkins, now Lord Brampton, said that the medical profession had no power to legislate on the matter. They might make their own rules—and he daresay they did so to the best of their ability—for their guidance as professional men, but they could not impose upon the public their self-made laws, as being binding upon them. The medical gentlemen called on behalf of Dr. Playfair said that they were only rules by which they regulated their own conduct. They mentioned two exceptions. In the case of a witness being called into the witness box in a court of justice, and asked to divulge a professional secret, they held that under those circumstances they were bound to give utterance to it. The judge declined to discuss the point, because he had a little doubt whether the rule could be stated so generally as that. Having regard to a variety of circumstances, there might be some matters which the judge might think unreasonable to be divulged by a professional man, and therefore he might refuse to permit it, and allow the witness to refuse to answer. He did not think, therefore, that because of the rule made by medical gentlemen they were bound in all cases where they were asked a question by counsel in court as to professional secrets, to answer. In his mind, they were not, in all cases, bound to answer. Each case must be considered by its own particular circumstances and by the ruling of the judge who happened to preside on the

occasion. It must be taken for granted that the judge would decide according to law. There was always a rule to set a judge right if he went wrong; on the occasion, however, on which he was ruling, his ruling would have to be taken as law. It was also said by the medical witnesses that if in the course of professional practice they came across a case which indicated either that a crime had been committed or was about to be committed, they were bound to divulge it. To whom? To the Public Prosecutor! If a poor, wretched woman committed an offence for the purpose of getting rid of that with which she was pregnant, and of saving her character, her reputation, and, it might be, her very means of livelihood, and if a doctor was called in to assist her—not in procuring abortion, for that in itself was a crime—but called in for the purpose of attending her and giving her medical advice—how she might be cured so as to go forth about her business, the learned judge doubts very much whether he would be justified in saying to the Public Prosecutor: "I have been attending a poor, young woman who has been trying to procure abortion with the assistance of her sister. She is now pretty well, and is getting better, and in the course of a few days she will be out again, but I think I ought to put you on to the woman." To his mind a thing like that would be a monstrous cruelty. Therefore, when it was said that there was a general rule existing in the medical profession, that whensoever they saw, in the course of their medical attendance, that a crime had been committed, or was about to be committed, they were in all cases to go off to the Public Prosecutor. The judge felt bound to say that it was not a rule which met with his approbation, and he hoped it would not meet with the approbation of anybody else. There might be cases when it was the obvious duty of a medical man to speak out, as, for instance, in a case of murder. A man might come with a wound which it might be supposed had been inflicted upon him in the course of a deadly scuffle. It would be a monstrous thing if the medical man might screen him and try to hide the wound, which might be the means of connecting the man with a serious crime. That was a different thing altogether. All the medical witnesses had admitted that professional secrecy was inviolable with certain exceptions. He (the learned judge) had mentioned the one of the witness in the court of justice, and also the other where a crime was brought to the attention of the medical man, and now came to a third. Communications between a doctor and his wife or children were said to be privileged where it was necessary to reveal them in order that the wife or children might be protected. He thought that that required a great deal of limitation, because cases might be imagined where the wife might be living under circumstances in which she did not want any such protection at all, and giving to her a secret belonging to a patient would be only a wanton violation of the rule. It was, however, a very delicate question, and would have to be argued some day. It will be seen that the learned judge left the question of professional secrecy precisely where it was before—that is to say, in a state of confusion which places the medical witness absolutely at the mercy of the judge. Dr. Playfair had the sympathy of the profession, and this was manifest in a striking manner at a banquet given in his honor on the occasion of his retirement from his chair at King's College. At that banquet, which was presided over by Lord Lister, many leading members of the profession were present.

Lord Lister referred to the trial, which he spoke of as a travesty of justice that did not in the slightest degree diminish the esteem in which Dr. Playfair had previously been held. All those present, whether former students, former colleagues, or others, rejoiced in this

opportunity of doing honor to Dr. Playfair, and united in a cordial wish that his retirement from the hospital and professional duty might be followed by many years of health, prosperity and happiness. Dr. Playfair, in answering the toast, said he could not refrain from making some remarks about the trial, and he might mention that Mr. Gladstone, to whom he was practically unknown, had done him the signal honor of writing to him a letter not marked private, so that he was justified in quoting it. In this letter Mr. Gladstone said: "Having most carefully studied all the evidence in this trial, I can come to no other conclusion than that you have done neither more nor less than your duty."

Dr. Playfair had prostatectomy performed on him last year by P. J. Freyer, after four years of catheter life, borne with great fortitude. In the spring he had a stroke of apoplexy at Florence and in the summer he came home to St. Andrew's to die.

Dr. George William Balfour, who passed away in his eighty-first year on August 9, was for many years one of the leading clinical teachers at Edinburgh. His advice was much sought after, especially in cases of heart disease, on which he was a leading authority. His books on diseases of the heart, and especially on the senile heart, rank among our classics of medicine. He began professional life as a veterinarian, but soon betook himself to medicine. He was a man of the type of character which the Scots themselves call "dour," and was more respected than loved by his professional brethren. He had none of the graces of manner which make the fashionable doctor, but he was certainly a great physician. He was an uncle of Robert Louis Stevenson.

As I write, Lord Salisbury, who was for so many years the ruler of this country, is dying of cardiac dropsy. He has suffered for a long time from Bright's disease, and his health, never strong, was undermined by hard work. He is attended by Sir Richard Douglas Powell and a young doctor named Walker, who half a dozen years ago was an obscure country practitioner, apparently with no prospect of ever being anything else. He had the good fortune to be called in an emergency to the late Lady Salisbury in her last illness. She took a great fancy to him, and her husband took him up and launched him among the aristocracy. Now he is the trusted adviser of half the peerage, a fact which of itself is sufficient to gain for him the confidence of the British public.

Parliament has been prorogued. The session just ended has been practically barren of medical legislation. A bill to amend the Medical Acts was among the "innocents" included in the slaughter which occurs every year at this time. Practically all that has been done has been to continue for another year the existing vaccination act, to which we owe the "conscientious objector." The government was just as glad to temporize on the matter of so contentious a measure. But the question will have to be faced next year, and the opponents of vaccination are preparing for the struggle.

Lesions of Gout.—The necrotic areas seen in tissues where urates are deposited are not considered by K. A. KRAUSE (*Zeitsch. f. klin. Med.*, Vol. 50, Nos. 1 and 2) to be really necrotic in the pathological sense of the word, since all the structure of the cells is lost completely. He believes they are merely embedding substance together with the frame-work of the crystals which are invariably found here. The crystals are not, however, limited to such location; they also extend between cells which in every way appear normal. Though the relation between the crystals and the so-called necroses is not cleared by this article it seems probable that death of tissue does not precede the deposition.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

ANATOMY AND THERAPY OF EXTRA-UTERINE PREGNANCY—TUBAL AND INTRAMURAL PREGNANCIES—VAGINAL OPERATION AND ECTOPIC GESTATION WITHOUT SHOCK—THE MECHANISM OF BIRTH—THE BIOCHEMICAL EXAMINATION OF THE BLOOD—ANALYSIS OF THE BLOOD AND URINE—PHYSIOLOGY OF METABOLISM BETWEEN FETUS AND MOTHER—ECTOPIC PREGNANCY—PERMANENT RESULTS OF OPERATIONS—RULES FOR OPERATING—CAUSE AND PREVENTION OF PUERPERAL FEVER—UTERINE CANCER—PSEUDOPAPILLARY OVARIAL CYSTS—SCOPOLAMIN HYDROBROMATE WITH MORPHINE TO PRODUCE ANESTHESIA.

The chief topic of discussion of the German Society for Gynecology, which met at Würzburg June 2 to 6 was the Anatomy and Therapy of Extra-uterine Pregnancy. The congress was opened by a paper by J. VEITH and WERTH upon the still obscure, early changes which take place in the tube when a fertilized ovum becomes definitely lodged there. The reflexa is then formed in part by the folds of the tube, but besides this there is another true reflexa of varying development. The hole in the epithelial layer through which the ovum slips, will again close and the tissue which bridges over the gap constitutes this reflexa. As the ovum increases in size, its peripheral portions will exert a destructive action upon the maternal tissue so that a strip of coagulation necrosis is regularly found where fetal and maternal cells meet. This is not due alone to the hemorrhages which are so common here. Views were also exchanged upon the position the developing fetus acquires with reference to the walls of the tubes and it was generally conceded that it was imbedded within the muscular layer. Tubal abortion is merely a result of development under unsuitable conditions since hemorrhages will readily occur by destruction of the weak layer between the ovum and the lumen of the tube and by the arrosion of vessels. In the majority of cases this will bring about an early death and extrusion of the egg. It is entirely wrong to look upon every ectopic pregnancy as if it were a malignant neoplasm; this view should only influence therapy in case the fetus is alive and steadily developing.

H. W. FREUND refers to five cases operated by him which closely simulated tubal pregnancy. Twice the condition proved to be pure hematocele, twice tuberculosis and once a neoplasm. Hematocele pure and simple is not so rare as some would believe, and is due to mechanical hyperemia or general venous stasis. One is not justified in pronouncing a case tubal pregnancy, if chorionic villi cannot be found in serial sections. The assumption that the egg may have fallen from the tube is untenable in view of the fact that it is firmly imbedded. Analogous conditions are the hemorrhages into the uterus and its mucous membrane in apoplexia uteri, the ovarian hematomata in local and general congestion and the hematosalpinx in congenital and acquired tubal occlusion.

The lodging of an ovum in an accessory tubal diverticulum is considered by FÜRTH of great importance. Fetal and maternal epithelial cells will come in contact and the former will acquire the upper hand. The tubal tissues will not grow in proportion to those of the ovum so that part of the surface of the latter will soon project into the tubal lumen. Everywhere one misses the power of adaption on part of the mucous membrane.

Five interesting cases are reported by HEINISUS, viz., one of intramural pregnancy, the ovum being situated in the muscularis of the uterus; one of ectopic gestation with ovum between a main and an accessory tube at the fimbriated end and three cases of tubal abortion.

Of these, one was complete so that the blood pressed out the egg at the fimbriated end, in the second the egg remained as foreign body within the tube, since the marked convolutions prevented an extrusion and in the third there was secondary rupture with tearing off of a tubal fold. Interference with the growth of the ovum is due to the destructive growth of the Langhans cells; they continue to proliferate for some time even after the death of the ovum. Reaction in the maternal tissue manifests itself in the form of edema and hyperemia in the immediate neighborhood of the egg. The variations in the pathological process depend upon (1) the individuality of fetus and mother. Generally the fetal cells show a greater power of reproduction. (2) The length of duration of the pregnancy. As the fetus develops, the fetal cells will divide less actively, the maternal more so. (3) The time that has elapsed since pregnancy has been interrupted. Concerning therapy, the following may be said: The living ovum is a constant menace to the mother, while, if dead, there is always the possibility of renewed hemorrhage from the site of insertion. Hence early, conservative operation is the most safe procedure.

The Therapy of Extra-uterine Pregnancy was the title of a paper read by SARWEY. He states that an operative procedure is always indicated: (1) In the second half of pregnancy, whether the ovum is alive or dead; (2) also in the early months if the ovum lives; (3) with recent rupture and signs of profuse, internal hemorrhage. An expectative and symptomatic treatment is in place with dead ovum and tubal abortion with or without hematocele except with (a) decomposition of the hematocele; (b) symptoms of pressure and severe attacks of pain; (c) accompanying severe disease of the generative organs, which requires operation. When the conservative treatment is carried out, preparation for immediate operation must be made. This must be resorted to (1) with steadily increasing hematocele; (2) where absorption does not follow and the patient becomes weary of her long illness. The abdominal method is to be preferred since better access is gained and the hemorrhage is more readily controlled. Colpotomy is to be restricted to cases of uncomplicated tubal mole without hematocele and to hematoceles which have suppurated.

STRASSMANN reports favorably upon vaginal operation in ectopic gestation if rapidly performed, without shock and without subsequent dangers of a hernia. He does it especially with unruptured sac, with free hemorrhage and with less recent tumors with exacerbations. Drainage is not necessary except where a large cavity is encountered.

The paper of FEHLING contains some valuable remarks upon the mechanism of birth. Where the forceps are applied with the head low down in the pelvis a number of accessory rotations occur which can be used to assist birth by applying 2 or 3 fingers of one hand to the small fontanelle or sagittal suture. Rotation of the anterior shoulder may be resorted to to assist rotation of the head. Excessive rotation may be brought about by a wrong position of the patient, especially in multiparae.

The biochemical examination of the blood of pregnant women is discussed by ORTIZ. He was not able to detect substances specific for placental tissue by means of the precipitin reaction, in the blood of pregnant women. An antitoxic serum against human syncytial toxins was manufactured and injected into eclamptics with due care, but conclusions cannot yet be drawn from the results.

LIEPMANN speaks upon the biological detection of placental substance in the blood and states that he has succeeded in isolating a serum specific for the placenta.

Retroplacental and fetal blood gives the characteristic reaction and porticularly rapid precipitation occurs with the serum of patients suffering from nephritis gravidarum.

A careful analysis of the blood and urine in eclampsia, forms ZANGEMEISTER'S contribution. Red and white cells are increased, the molecular concentration and the nitrogen in the serum are increased and the alkaliescence of the blood diminished. Proteids and chlorides occur in normal proportions. There seem to be marked variations in comparison to normal blood. Since these changes are occasionally absent they cannot be looked upon as the cause of eclampsia, but must be interpreted as secondary to retention of urine or circulatory disturbance. The amount of water in the urine suffers a reduction which is most marked during the attacks but again is not the direct cause of the convulsions, since these often cease before the disappearance of oliguria. The same may be said about the retention of salt. The cerebral symptoms point to a spasm of the cerebral vessels. Uremia is not the direct cause of eclampsia, but the latter is frequently complicated by a secondary uremia.

MANDEL then follows with a paper upon the Physiology of Metabolism Between Fetus and Mother. Various drugs injected into the mother, readily passed over into the fetus, no matter whether the fetus was still in the uterus, or only in its membranes or simply connected with the mother by means of the umbilicus. Thus atropine caused mydriasis and pilocarpine profuse perspiration. Adrenalin alone did not pass into the fetal circulation.

The second day of the congress was devoted to the demonstration of a number of interesting specimens of Ectopic Pregnancy and to the discussion of operations for prolapse.

A. MARTIN does not consider position of the uterus and trauma at birth of such great importance in the causation of prolapse. In virgins, tuberculosis and masturbation are of prime importance; in married women the loss of resistance on part of the connective tissue. Trauma, inflammation and tumors are only the exciting causes. Hence constitutional treatment and care during the puerperium, climacterium and after infectious diseases are of the greatest importance. Pessaries do not constitute prophylactic measures, and it is more rational to resort to early operation. Later the interference is rendered more difficult and extensive. The best plastic method and the best means of fixation are not yet decided upon. Extirpation of uterus and vagina is only rarely indicated though the results are good. To pass judgment upon the value of the various operations, surgeons must carefully individualize and all patients should be reexamined after a certain time.

KÜSTNER lays stress upon the correction of malposition of the uterus to avoid bad results. A recurrence generally occurs in the first year after operation. He does not criticise pessaries so severely as MARTIN and believes they are certainly in place where patients can take care of themselves.

HALBAN and TÄNDLER have found that a marked difference exists between the anatomy of vaginal prolapse with elongation and true uterine prolapse; in the former the relations are almost normal, while in the latter there is a maximum descension of the entire pelvic floor. Hypertrophic elongation does not always consist of a lengthening of the cervix, but in the majority of cases of an elongation of the lower uterine segment.

ZIEGENSPECK ascribes prolapse to a difference between abdominal and atmospheric pressure. Deficient involution during the puerperium and tearing off of the vagina from the levator most frequently disturb the normal re-

lation. Hypertrophy of the prolapsed portion is generally only apparent, and caused by edema. The uterus could not be artificially prolapsed in cadavers, probably on account of long previous illness which permits the organ to slip back. In recent cases massage is excellent and a narrowing of the soft parts of the pelvic outlet will cure every case.

SCHAEFFER believes that the frequent combination of prolapse with vasomotor and nervous disturbances points to a primary as well as secondary origin of the latter. The very interesting blood-examinations are too extensive to be published in full.

KOBLANK, of Berlin, then delivered a lecture upon the permanent results of operations. A definite opinion is only to be passed after four years and the character of a delivery during this time must be taken into consideration. Of the cases observed, 44 per cent. were cured, 34 per cent. were partially cured and the remainder suffered from a recurrence. Part of the failures depended upon neglect of the elongated cervix. Posterior displacement of the uterus plays no part in the etiology of prolapse. Both retroflexion and prolapse are a result of relaxation of the connective and muscular tissues of the pelvis and both do not in any way influence each other. Prolapse in advanced age has the same causes, the disappearance of adipose tissue plays only a minor rôle.

SCHAUTA divides the operative procedures into three groups, viz.: (1) Plastic operations on vagina, perineum and cervix; (2) anterior displacement of the uterus; (3) in advanced cases, excessive ante-fixation, by anchoring the uterus at the vagina. Of late, SCHAUTA amputates the cervix and shortens the sacro-uterine ligaments, then fixes the uterus to the vesicovaginal septum and finally does a colpoperineorrhaphy. The only disadvantage is that pregnancy will be difficult, hence the ovaries must be removed before the climacteric. Among forty operated cases there was only one recurrence.

BUMM lays down the following rules to be followed in operating: (1) Defects in the perineum and pelvic floor are best remedied by Hegar's colpoperineorrhaphy. Lawson Tait's method is insufficient and carries with it dangers of embolism. (2) The descended or retro-flected uterus must be ante-flected, preferably by Alexander's operation or ventrofixation. Vaginal fixation causes permanent discomfort. (3) The best permanent results follow total extirpation combined with anterior and posterior colporrhaphy. Indications for total extirpation in women near the menopause are: (a) Extensive prolapse with enterocele; (b) chronic metritis, erosions and ulcerations; (c) disease and tumors of the adnexæ; (d) unsuccessful former operations; (e) cystitis which cannot heal owing to the cystocele present.

According to MACKENRODT the connective tissue atrophy is due to changes in the pelvic ganglia after trauma due to parturition. Tearing of the levator ani alone cannot be the cause, since wounds here readily heal without any further results.

In accordance with his theory as to the origin of prolapse, THEILHABER pays no attention to the uterus itself but extensively resects the anterior vaginal wall. The posterior wall is operated only where there is also a large rectocele. In primary prolapse, he seeks to fix the uterus merely by narrowing the vagina.

GEBHARD describes his method of vaginal ventrofixation. In uncomplicated cases the duration of the operation is only twelve minutes. One of his cases passed through a normal birth and a second is seven months pregnant. He uses a special needle which can be readily procured.

ASCH inquires if there is any method which will posi-

tively guard against recurrence. He believes that general treatment is of as much importance as local. If the condition reappears with a subsequent delivery, it must not be regarded as a recurrence since the original causes are then again active.

DÖDERLEIN speaks at length upon the cause and prevention of puerperal fever. He believes the hands are the most frequent transmitters of germs and warmly recommends rubber gloves in obstetrical practice.

BUMM found that streptococci occurred in the vaginal secretion of 75 per cent. of pregnant women, in a series of primiparæ the figures were even as high as 86 per cent. The tampons used for checking hemorrhage contained the germ in 70 per cent. and the lochial secretion during the puerperium was always infected. The vaginal streptococcus could be distinguished in no way from the ordinary streptococcus of sepsis, though it seemed to be harmless in all cases examined but three. The only explanation possible is that of diminished virulence. The presence of many streptococci on microscopical examination always speaks for sepsis.

OLSHAUSEN agrees that a carcinomatous uterus can be removed more radically by the abdominal route, but does not believe that the vaginal method is never indicated since a permanent cure was achieved in 18 per cent. of cases. The extirpation of glands prolongs the operation and does not give the patient much better chances. Removal of all the connective tissue in the pelvis is as yet a dream. Five years must elapse before a patient is pronounced cured, since recurrence occurs just as often between the third and fifth year as during the first years. Latterly OLSHAUSEN resorts to the abdominal route more frequently, but merely for the better isolation of the ureters.

WINTER performed a radical operation in 57 per cent. of all his cases of uterine cancer. In order to ensure early diagnosis and operation he sent pamphlets to all physicians and midwives of his neighborhood with very gratifying result.

Ligation of the afferent arteries in inoperable carcinoma of the neck, was no more dangerous, according to STOLZ than curettage and cauterization.

In the discussion which followed GLOCKNER states that his mortality with the WERTHEIM operation was only 10 per cent. Accessory injuries occurred in 15 per cent. and suppuration of the skin incision in 22 per cent. Enlarged glands were found in 34 per cent., carcinomatous glands in 22 per cent. The number of recurrences during the first year was not half of that following vaginal operation. WERTHEIM believes that it will only take a few more years before the superiority of the abdominal operation is generally conceded. MACKENRODT thinks it is impossible to avoid injuring the ureters in advanced cases operated from the vagina. The vaginal route is indicated only in very early cases of cervical cancer, provided the cautery is very freely used, to avoid implantation metastases. If the glands are not removed, the abdominal method is hardly as difficult as the vaginal.

GLOCKNER speaks upon pseudopapillary ovarian cysts and states that they are characterized by the presence of more solid portions between the various loculi, so that they make the impression of solid tumors. Microscopically these portions are septa formed by epithelial protrusions into the connective-tissue walls of the smallest cysts. The cell secretion is very small compared with the cell-proliferation. In the speaker's seven cases the clinical diagnosis of malignant tumor was made and the second healthy organ was also extirpated.

SEMON employed scopolamin hydrobromate with morphine to produce anesthesia, in 52 operations. On the whole, he is well-satisfied and has never met with

any accidents. In order to deepen the narcosis, a few whiffs of chloroform were generally found necessary. The advantages of the combined method are absence of all excitement, small amount of chloroform necessary, absence of pain even for some time after the operation, absence of nausea, vomiting and albuminuria.

KRÖNIG then demonstrated an ether-chloroform apparatus, combined with a Bennet inhaler.

Based upon 110 gynecological and 17 obstetrical operations, performed with spinal anesthesia, STOLZ states that (1) spinal anesthesia is in most cases sufficient for gynecological cases. Operations upon the external genitals require 0.05, laparotomies 0.07 to 0.08 grams of tropacocaine; (2) the analgesia lasts one-half to one hour and the deeper sensory segments remain anesthetized longer than the higher ones; (3) narcosis with spinal anesthesia is brought about more rapidly and with less excitement than without it; (4) spinal anesthesia is not followed by complications, if 0.05 to 0.07 grams of tropacocaine, dissolved in cerebrospinal fluid are employed.

SCHRÖDER relates his extensive experience with the intertrochanteric diameter in pelvic measurement. He regards it as absolutely without value.

STÖCKEL gave a general review of the different ureteral lesions and their therapy and goes into the details of ureteral implantation. The intraperitoneal method is followed by the best results.

After discussing the historical development of our knowledge of cystitis, BAISCH goes into the details of the clinical symptoms of the postoperative form. In fully 50 cases the *Staphylococcus albus* and *aureus* were found present. Streptococci occur only rarely but there is almost always a secondary invasion of colon bacilli. The germs are derived undoubtedly from the urethra since staphylococci and colon bacilli, invariably occur in the urethra of operated women. A partial freeing of the bladder from its surroundings is all that is necessary to permit the germs to gain access and set up an inflammation. To avoid this, the bladder should be catheterized as rarely as possible. By injecting 20 per cent. boric glycerin into the full bladder on the evening of the operation, the urine will generally be voided spontaneously.

The systematic palpation of the sacro-uterine ligaments permits of an exact topographic-anatomical diagnosis and should form an important part of every accurate gynecological examination, according to the paper of SELLHEIM. These ligaments form the best means of distinguishing between parametritis and intraperitoneal tumors and between intraligamentary tumors and such that have grown into the free peritoneal cavity.

According to HEINRICH, the injection of caustics into the uterus, sets up contractions which may force the fluid through the tubes. He therefore devised a new instrument, which not alone introduces the fluid but also permits it to escape at the os. In corporeal endometritis, HEINRICH prefers 10- to 20-per-cent. solution of formalin, in cervical endometritis, 50-per-cent. solution of chloride of zinc and in chronic gonorrheic endometritis without adnexal disease 1 to 10 per cent. silver nitrate every eight to fourteen days.

That there is a close relation between nose and uterus is the firm conviction of OPITZ. In animals the sense of smell may lead to sexual activity and probably to uterine contractions. The same probably holds true to a less extent in man and dysmenorrhea accompanied by abnormally severe pains may possibly be a reflex neurosis starting from the nose.

AMANN believes that vaginal instead of abdominal operations are often performed because abdominal ruptures are feared. It is of the greatest importance to

bring together the muscles and fasciæ after a laparotomy and the nutrition and innervation of the muscles should not be interfered with. A special suture is mentioned which has given excellent results during the last seven years.

SCHALLER recommends large doses of castor oil for post-operative ileus.

The final paper was by BURCKHARD, who spoke at some length upon the retrogressive changes in the puerperal uterus of the mouse. The placental site is again covered by epithelial cells by the active mitosis of the cells covering the surrounding mucous membrane. The glands which have lost their connection with the lumen send off new diverticulæ, which are at first solid and later develop a lumen and open upon the free surface.

SOCIETY PROCEEDINGS.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Held July 14, 1903.

William Egbert Robertson, M.D., in the Chair.

The Etiology of Cholelithiasis.—This paper was read by Dr. Wm. Egbert Robertson, in which he gave a résumé of the history of this condition, stating that but very little had been learned of its etiology since it was first mentioned, about 1570 or 1580. He referred to the fact that obstruction of the common duct would give rise to jaundice, may or may not produce colic and may be discovered only at the post mortem. The stones may vary in size, color, shape and weight, and a catarrhal condition of the gall-bladder and ducts usually precedes the formation. Elevation in the temperature of the liver may give rise to the formation of these concretions, as may also paracelsis, and deposition of the bile salts. The paracelsis may occur as a result of errors in diet, and is frequently due to faulty metabolism. The complications of the possibility of perforation and escape into the peritoneal cavity, and develop peritonitis, or else ulcerate in the intestines were also known. He went into some detail as to the composition of gall-stones, and referred to the fact that when they occur in numbers they are apt to be faceted. He believed that they grew by the addition of strata after strata, which accounted for the indifferent substances sometimes found in different layers of the same stone. He referred to the fact that conglomerate stones are not common in human beings but are not at all rare in animals. He also called attention to the possibility of the formation of these stones in the ducts from the fact that they had been found in animals without any gall-bladder. He referred to the fact that micro-organisms could always be found in these cases and believed that in many instances the formation of the gall-stones could be directly traced to the micro-organism and the consequent deposit of the bile salts and other matters in the gall-bladder and ducts forming the stones, aided by faulty metabolism and gastro-intestinal disturbances.

Diagnosis of Gall-bladder Disease.—Dr. J. Thompson Schell read a paper with the foregoing title. He said that the disease depended (1) on the location of the inflammation of stone; (2) on the degree and character of the inflammation; and (3) on the size of the stone, the symptoms varying from those of pronounced jaundice to obscure and in some instances no symptoms at all. Acute catarrhal jaundice, with history of gastro-intestinal disturbance, bile pigments in the urine, slow pulse and no symptoms pointing to acute yellow atrophy or malignant disease, occurring in young adult

life is probably one of the most characteristic cases. When the symptoms occur in a patient over thirty years of age, pain similar to gall-stone colic may be caused by the expulsion of plugs of mucus, which can probably be detected by washing the stools, although some assert that the gall-stones may be dissolved in the intestines. Chronic catarrhal cholangitis may be caused by obstruction of the common duct either by gall-stone, malignant disease or pressure on the outside, and may extend into the minutest ducts of the liver. The important symptom is continuous jaundice and the course of the infection is that of hypertrophic cirrhosis. Suppurative cholangitis usually follows upon an attack of catarrhal inflammation, and is usually associated with gall-stones, either in the ducts or bladder. The symptoms are remittent chills and fever, grave constitutional symptoms resembling sepsis, enlargement of the liver, colicky pains and jaundice, which are not so marked as in the catarrhal form. In both forms the blood should be examined to exclude the possibility of malaria. This disease is often difficult to differentiate from abscess of the liver. In abscess of the liver, there is progressive and rapid emaciation and anemia, extreme tenderness over the liver, high and intermittent temperature, rarely jaundice; in suppurative cholangitis, there is a history of biliary colic, transient jaundice and no enlargement except in severe cases, while in abscess of the liver enlargement is a prominent symptom. Cholecystitis he divided into three classes, acute, subacute and chronic, with or without associated gall-stones. The acute variety is usually caused by micro-organismal infection, and he believed the differentiation between the calculous and the non-calculous forms to be possible, but as operative treatment would be demanded in any event, felt that the distinction was of little importance. The symptoms are acute paroxysmal pain in the right hypochondriac region, sometimes in the epigastric or iliac region, followed by nausea, vomiting, abdominal distention, rigidity, tenderness and constipation. The diseases most frequently mistaken for acute cholecystitis are acute intestinal obstruction, appendicitis, acute pancreatitis and perforating gastric ulcer. If the patient has a marked temperature rise, intestinal obstruction can usually be excluded, as the temperature does not usually rise in that condition prior to the development of peritonitis. As to appendicitis, this is the most difficult condition to differentiate and frequently can only be accomplished by an exploratory incision. In acute pancreatitis the pain is usually more and is on the left side, instead of the right, and tenderness, or a tumor, when present, is more superficial in cholecystitis than in pancreatitis. The location of the pain and rigidity are the only differentiating guides between cholecystitis and perforating ulcer of the stomach or duodenum. Cholelithiasis occurs mainly in women—sixty-five per cent. to seventy-five per cent. of all cases usually between the ages of forty and sixty years and rarely under twenty-five years, gormandizing, sedentary occupation, constipation, tight lacing, all act as predisposing causes. The premonitory symptoms, such as constipation, flatulency, loss of appetite, vertigo, tinnitus aurium, migraine, icteroid tinge and scanty dark urine should be carefully considered, as should also the character of the pain, the presence or absence of vomiting and shock, and the condition of the pulse and temperature. Jaundice is an unreliable symptom, and while the urine usually shows bile pigment, it will not do so unless there is some jaundice present. In obstruction of the cystic duct, unless it is absolute, no discoloration of the symptoms may occur. The local physical signs are of great importance and must be carefully considered. Tumor of the gall-bladder, when present, is a great help in making a diag-

nosis. In acute obstructions of the cystic duct a typical tumor is usually found, being round, smooth and elastic and when palpated and pushed away from the abdominal wall will return to the examining finger as if swung on a pendulum. In chronic cholecystitis with adhesions one will sometimes be able to find an irregular mass in this region. The gall-bladder tumor responds to respiration; crepitus can be sometimes but rarely felt, and if Reidel's lobe can be felt with its sharp edge lying across the tumor it is pathognomonic of gall-bladder disease. Among the conditions which we are frequently called upon to exclude in a diagnosis of gall-bladder disease are gastralgia, non-perforating gastric ulcer, intestinal colic, malarial fever, carcinoma of the gall-bladder and movable kidney.

Treatment of Cholelithiasis.—This paper was read by Dr. Wilmer Krusen, in which he divided the treatment into (1) surgical, and (2) medical, the latter being divided into (a) treatment during the attack and (b) prophylactic measures indicated during the interval. The objects sought during the attack are relief of the pain, relaxation of the spasm in order to permit the passage of the calculi, and limitation of the inflammation and congestion of the gall-ducts and liver, which he recommended be accomplished by (1) morphine and atropine hypodermatically; (2) general hot bath and hot fomentations over the hepatic region; (3) in aggravated cases, ether or chloroform to a mild degree of anesthesia, in order to relieve the pain; (4) digital manipulation and (5) saline purgatives. The treatment during the intervals should be directed (a) to the solutions of the gall-stones present and (b) to preventing the formation of new concretions. The value of the first method he thought was rather problematic, although the Durand remedy of ether and turpentine, and also olive oil, had been quite extensively used. For the prevention of the formation of the stones, one to two drams daily of sulphate or phosphate of soda, and alkaline mineral waters were recommended. A review of the history of gall-bladder surgery was given and early operation deemed to be imperative for the best results to be secured. After referring to the five different operations, (1) cholecystotomy, (2) cholecystectomy, (3) choledochotomy, (4) cholelithotripsy, and (5) cholecysenterostomy, which were open to the physician, he described in detail the process of cholecystotomy, which he felt was the operation for most cases, being the simplest, although the presence of a stone in the cystic duct may render necessary the performance of either a cholelithotomy or a choledochotomy. He felt that the wound should not be completely closed but that a rubber drainage tube should be inserted for eight or ten days after the operation, a few days after which a pad may be placed over the sinus, and if bile appears in the stools, a firm pad and strapping will aid in early closure. Cholecystectomy he believed had certain advantages, viz., (1) a radical cure of the cholecystitis and gall-stones by removal of the nidus of infection and calculi; (2) avoidance of biliary fistula; (3) a perfectly clean operation with no soiling by infected bile; (4) avoidance of adhesions; but he felt that the great mortality reported by this operation was a powerful argument in favor of the more conservative procedure, except in cases where the gall-bladder is the seat of suppurative changes, or neoplasms, or when the cystic duct is permanently obstructed. In cases of common duct obstruction, when the removal of the cause is impossible, such as cancer of the pancreas, then the union of the intestine to the gall-bladder, as suggested by von Winiwarter, is of advantage. Five cases were reported, the first being a case of spontaneous rupture of the gall-bladder, after about a week's illness of pain and swelling in the he-

patie region, biliary vomiting and moderate rise in temperature, during which time salines and calomel had been administered. A cholecystostomy was done, the cavity cleaned out with gauze sponges; the gall-bladder incised and irrigated and a quantity of biliary sediment evacuated; drainage established for about ten days, and the man made a good recovery. The second and third cases were both those of stones impacted in the cystic duct and both had been primarily diagnosed as appendicitis. In each case four gall-stones were removed, and in each instance one was impacted within the duct; a drainage tube was inserted in each case and both made good recoveries, although one was complicated by an attack of biliary fever, lasting about a week, with a temperature of 103 to 104° F. In the fourth case, appendicitis had been diagnosed, but upon opening the abdomen, no disease of this organ was discovered and the wound was closed without further investigation. Two days later the symptoms had increased in severity, the temperature was 103 to 104° F.; pulse 140; evidences of beginning peritonitis were present and there was a distinct mass perceptible in the gall-bladder. Immediate operation was performed; empyema of the gall-bladder discovered, the pus evacuated and 420 gall-stones removed, but the patient died in a few hours. The discussion was opened by Dr. H. C. Deaver. He believed that the infection was in most instances mild in the beginning, and that frequently cases complaining of vomiting and pain in the upper portion of the abdomen would be found upon careful examination to display more or less tenderness and rigidity in the region of the gall-bladder. Previous history he believed to be an important factor in the diagnosis, but jaundice is so often absent that but little confidence can be placed therein. The differential diagnosis between appendicitis and cholelithiasis is sometimes difficult, but in the latter condition, the fever and vomiting are usually more persistent than in the former. Chronic obstruction of the gall-bladder or enlarged gall-bladder is sometimes mistaken for movable kidney. He believed that the cases that could be benefited by medical treatment were the cases that were diagnosed early, and if the stones were already in the bladder, medical treatment was not only useless but to delay radical interference was dangerous.

Dr. Samuel Wolfe remarked on the fact that there seemed to be very few statistics in this disease from American workers. In the formation of the gall-stones, he believed there were two elements present: (1) A local inflammatory element and (2) a constitutional element, which he felt was evidenced by the fact that gall-stones were more frequently found in people in whom the functions of life were not being very actively performed. In regard to the relation of carcinoma, he felt that probably the carcinomatous condition of these parts was more often the cause of the gall-stones than were the gall-stones the cause of the carcinomatous conditions. In the diagnosis of the condition, he believed careful abdominal inspection and palpation, paying particular attention to any tenderness or rigidity would lead to an early diagnosis in many of the cases. Medical treatment, other than prophylactic, he believed, was of no avail.

Dr. Charles S. Barnes referred to the fact that Ricketts, of Cincinnati, recommended the opening of the duodenum when the stones were impacted in the common duct. He also referred to the importance of early recognition of the condition and prompt operative treatment and referred to the practice of Dudley, of New York, of aspirating the bladder and injecting formalin in infective cases.

Dr. T. Turner Thomas did not believe that if the

gall-stones were the result of infection they could be present without some signs of sepsis. He felt that gall-stones which are local in origin are the results of infection, but that those that are of constitutional origin are the direct results of inflammation or irritation in the gall-bladder. In regard to the diagnosis of gall-stones he called attention to the fact that the classical symptoms are sometimes absent, and particularly is this the case with jaundice. Operation, he believed, should be done early. He referred to the exceedingly small mortality of the operations, varying from about 15 per cent. in the hands of the average operator to as low as 1 per cent. reported by Mayo Robson and Corey. He referred to the difficulty of differentiating between enlarged and movable kidney and gall-stones, abdominal colic, pain and gastro-intestinal disturbance being present in both. In movable kidney, however, the pain extends down toward the testicle, while in gall-bladder disease it extends up the back and toward the right shoulder, and rigidity and pain are important factors in diagnosis.

Dr. William E. Parke laid especial stress upon the importance of early diagnosis and operation, and even although the exact condition present was not diagnosed, he believed an explanatory operation was warranted. He reported the case of a woman aged fifty-one years, who had suffered from severe abdominal pain, necessitating the employment of hypodermics and the icebag. The pain was relieved in a very short time, and she got fairly well, with the exception that she had a most persistently coated tongue. The case was viewed as appendiceal colic, and operation expected to be performed later. About two weeks later a similar attack occurred; there was no jaundice and nothing could be felt except rigidity. She was treated medically by salines, etc., for three or four weeks, without relief, when the conclusion was reached that she was suffering from gall-bladder disease and operation advised. Upon opening the abdomen a cancerous nodule was found in the liver, and the patient gradually grew worse and died.

Dr. Wm. Egbert Robertson in closing stated that the reason the statistics were so much greater from Europe than in this country was due to the fact that the opportunities for post-mortem work were much greater.

Dr. J. Thompson Schell reported the case of a woman four months pregnant, who gave a history of repeated attacks of gall-stone colic. She suffered from abdominal pain, rigidity and the movable mass in the region of the gall-bladder, which had been diagnosed by the attending physician as gall-stones. The abdomen was opened and a small ovarian cyst about the size of an orange removed, since which time there has been no evidence of gall-stones or any trouble whatever with the gall-bladder.

PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting held May 7, 1903.

The President, J. M. Fisher, M.D., in the Chair.

Exhibition of Specimens.—By Dr. L. J. Hammond, who said that many of these specimens casually observed present nothing of unusual interest. They have all, however, to him an unusual amount of interest, because of the complications surrounding at least two of them, making what otherwise seemed to be a perfectly clear condition, one of uncertainty, until the actual condition was revealed at the time of operation. The first specimens he exhibited were two unusually large tubes and ovaries which represent rather unique specimens of gonorrheal pyosalpinx, clinical diagnosis being confirmed upon microscopical finding of the gonococci in the pus removed from the severed end of the

tube. It is extremely rare to be able to demonstrate the presence of the gonococci in the pus found in the tubes, this being the first case in which he has ever been able to secure positive evidence. The second specimens are quite unique. They were removed from a woman sixty-two years of age, and, as will be noted, they are unusually large, especially the left one with the anterior surfaces smooth and somewhat irregular in outline, while the posterior surface is ragged, showing adhesions of the entire posterior surface to the parietal peritoneum. It was absolutely necessary to quarry them out from the deep tissues in which the posterior surface was firmly imbedded and adherent. Their stony hardness was most pronounced. Microscopical examination shows them to be true enchondroma. The case is therefore one of bilateral ovarian enchondroma. He has not been able, in a rather superficial investigation of the literature of the subject, to find any authentic case of pure enchondroma recorded. The patient, in addition to the six intra-abdominal growths, had also five enlarged perirectal glands which were in size from that of a nutmeg to a hulled walnut. These have since broken down and presented, microscopically, a few weeks ago, a suspicious appearance of malignancy. They were not subjected to microscopical examination and he cannot therefore positively state their true nature. The patient's health, however, is excellent. The third specimen exhibited, so large that he is unfortunately unable to remove it from the jar, is, aside from being an unusually large fibroid, not of special interest at this stage. It is presented in order that he may bring out an unusually interesting feature in connection with the question of diagnosis that presented itself to him when the tumor was exposed through the abdominal incision, that is, an immense hematoma, which, as will be seen by the dark area over the anterior surface of the tumor, was the first point presenting itself through the abdominal incision, and the question at once arose whether the condition was not one of cyst. Of course, this was readily negated on tapping, when the true character of the contents was revealed. The diagnosis was fibroma before operation. The patient made an entirely uninterrupted recovery. Another point of considerable interest to me in this specimen is that the anterior and lateral portions of the uterus are alone the seat of this myomatous change. The posterior portion of the uterus seems to be entirely free from the growth. The patient from whom this growth was removed was forty-two years of age and had borne one child nineteen years ago. The next specimen shown, of such great size that it is somewhat difficult to handle, was removed from a woman thirty-two years of age, three weeks after birth of her eighth child, at full term. The case was seen in consultation with Dr. West, who had no knowledge of the patient previous to the present confinement, nor could the patient give any intelligent idea as to whether the growth existed before pregnancy, or whether it sprang up during its course. The only information she could give was that her stomach had been very large for a year or more previous. The entire abdominal walls were stretched to their utmost extent, bringing out very conspicuously the distal veins. The presence of fluid could be determined in about the same way as it would be in a general ascites. None of the usual points of dulness observed in ovarian tubes were present. The flanks were distended as they would be in general abdominal ascites. On the left side and extending as far up and beneath the ribs as could be felt was a hard mass, as is shown in the specimen, extending down to the crest of the ilium, and across to about the median line on the left side. With the exception of the markedly dull area overlying this hardened mass, resembling most noticeably an enlarged

spleen, the entire abdomen seemed filled with fluid from within its cavity. Vaginal examination showed the cervix in a normal condition for three weeks after labor. The vaginal vault was markedly convex outward, and pronouncedly tense. The woman presented the characteristic fascia ovariana so aptly described by Sir Spencer Wells. Though this peculiar expression is also found in cases of long standing abdominal ascites, he had, of course, in mind the probability of its being ovarian cyst, though the large mass recognized as decidedly myxomatous made him undecided, and determined him to give some weight to the thoughts of its being a splenic ascites. Of course, this possibility was at once set aside after incision was made. An unusually long incision, extending from the umbilicus to the pubes was necessary to deliver the sac after the fluid, which was rather thick and chocolate colored, had been withdrawn. The wall of the cyst was adherent throughout the entire parietal peritoneum anteriorly, laterally and posteriorly, also to the liver, transverse colon, stomach, spleen and diaphragm, the intestines occupying but an incredibly small space posteriorly. The growth contained more than three gallons of this chocolate-colored fluid, weighed 110 pounds, and the adhesions were the most extensive that he had ever undertaken to break up. The abdomen was drained for forty-eight hours, the patient making a perfectly natural recovery. This myxomatous mass that is seen occupying the left side of the sac is very like in shape to the spleen. It is certainly interesting to him in showing how excusable it would be to at least give serious thought to the possibility of hypertrophied spleen with ascites, especially when one remembers that this cyst wall was so firmly adherent throughout, above, laterally and below that it gave no symptoms different from what would be found in a general peritoneal ascites. The case was, however, one of left-sided ovarian cyst. The rather ignorant subject from whom the specimen was removed prevented his arriving at any conclusion as to whether it developed during the course of the last pregnancy or had been much longer present. From the extensive and well-organized adhesions, however, he is strongly disposed to the belief that it had probably been present during her former pregnancy.

Placenta Previa with Transverse Position.—Manual Dilatation.—Podalic Version.—This subject was presented by Dr. Wilmer Krusen, who cited the following case of placenta previa, which, he thinks, is of sufficient interest to be reported, if only to stimulate discussion upon the treatment of this most serious complication of pregnancy: Mrs. McC., aged thirty-four years, IX-para; was first seen with her physician, Dr. John McCormick, on Jan. 6, 1903. The diagnosis of placenta previa had already been made. The patient had been bleeding irregularly for five weeks. Her general condition was good, and the pregnancy was about at term. The hemorrhage had been quite profuse. On examination, the fetus was found in a transverse position; head to the left of the mother's abdomen and the back anterior. The cervix was softer and more succulent than usual. The os was slightly dilated, so that little difficulty was experienced in passing a finger through the cervical canal and feeling the characteristic sponge-like placental tissue above. As the patient had refused to enter any maternity hospital, it was determined to treat the case at her home as well as the environments would permit. On January 7, under ether anesthesia, after the usual careful antiseptic preparation, rapid manual dilatation and podalic version were performed with speedy delivery of the child. The dilatation of the os was easily accomplished, as the woman had borne nine children and had a roomy birth canal. The hemorrhage during the detachment of the placenta,

which was centrally implanted, was exceedingly profuse. A gush of blood, resembling the outpouring from a fireplug, deluged the obstetrician. The right anterior leg was brought down first, followed in a few seconds by the other, and the buttocks temporarily controlled the hemorrhage. The child was speedily delivered, although in extracting the arms the right humerus was broken. As the uterus was much relaxed the placenta was immediately delivered manually. The anesthetic was withdrawn and by vigorous external and internal manipulation, by irrigation with hot normal saline solution and a tampon of iodoform gauze, uterine contractions were excited. The patient's condition was excellent, no shock was noted, the pulse was full and strong, running from 75 to 80. The child was perfectly developed and although slightly asphyxiated, was easily resuscitated. As the mortality for the children in placenta previa is over 50 per cent, and increases as the placenta is more centrally situated, the saving of the child was particularly gratifying and could not have been secured, had there been the slightest obstruction or delay in delivery, as the placenta was perforated and almost completely detached some seconds before the birth of the child. The subsequent convalescence of both patients was uneventful. This case illustrates the value of terminating pregnancy in a most conservative manner as soon as possible after a placenta previa has been positively diagnosed, without waiting for the onset of labor, or subjecting the patient to the danger of hemorrhage in the absence of a physician. By having trained assistance and all facilities at hand for the treatment of hemorrhage and shock, the best interests of the patient are assured. In this case the multiparity of the patient and the roomy birth canal rendered the manual dilatation extremely easy. In other patients, under other circumstances, it may be necessary to employ some mechanical method to effect dilatation such as the Champetier de Ribes balloon or the Bossi dilator; but he believes it will rarely be advisable to perform Cæsarean section in the treatment of these cases.

Dr. Stricker Coles, in discussing this subject, said he was very glad to hear of the success of Dr. Krusen with his case of central placenta previa, having saved both the mother and the child. This subject has greatly interested him for some time, but he has not been able to get satisfactory statistics, as most papers do not clearly define the different varieties of placenta previa. The mortality of the lateral, marginal and partial varieties should not be considered with that of the central variety. The first three can be treated by rupturing the membranes and saving in many cases both the mother and the child, so that he will limit his discussion entirely to that of central placenta previa. In a great many cases of central placenta previa, the bleeding comes on early, at about the fifth month, before the child is viable, and in these cases the life of the child is of course not to be considered, and the case is best treated by version and slow extraction. In cases where the child is viable one comes across two conditions: The first is where there has been considerable hemorrhage and the life of the child is lost or so nearly lost that a radical operation would not be justifiable, and these cases would be best treated with version and the slow extraction of the child. But in those cases where the child is viable and nearly at term and there has not been a severe hemorrhage and the child is in good condition, one has to consider both the life of the child and that of the mother. He believes in treating these cases, if the patient is a multiparous one, where the cervix can be easily dilated and the vagina is large, these cases would probably be successfully treated with version and rapid delivery, trying to save both the mother and the child; but one must always remember that

where rapid version is done and attempt is made to save the life of the child, at the same time the danger to the mother is increased, due to the lacerations of the cervix, which is soft and vascular and will increase the danger of post-partum hemorrhage, because the muscle fibers of the cervix have been torn and paralyzed. Central placenta previa does not very often go to full term, but if he should see a patient with the central variety where the cervix is not easily dilated and the vagina is small, whether it be a primiparous patient or one that has had only two or three children, he should certainly advise such a patient to have Cæsarean section, and for two reasons: First, for the sake of the child, as one will hardly be able to deliver the child quickly enough to save its life in more than 25 per cent.; and second, for the mother, to lessen the danger of post-partum bleeding. He would in this case do celiohysterectomy unless there were some special reasons for the removal of the uterus. Where the child is removed through the uterus, there is not so much danger of hemorrhage, as the cervix has not been torn, and he does not think it is necessary in these cases to remove the uterus. If necessary to control hemorrhage, one can pack the uterus with iodoform gauze. In conclusion, version should be performed in those cases where the child is not visible, and where the child is dead, or its life is endangered from severe hemorrhage, and where the cervix is easily dilated and the vagina is large. In those cases where the cervix is not so easily dilated and the vagina not large, and the woman has not had a severe hemorrhage and the child at or near the full term of gestation—under such conditions, he thinks, Cæsarean section should be employed.

Dr. George M. Boyd said that Dr. Krusen is to be congratulated upon the result in this case. To deliver a patient with central previa successfully and with a living child, he thinks is a great feather in his cap. It shows his dexterity and ability in performing version. He agrees with Dr. Coles in regard to the treatment of a few cases of placenta previa that will come under their care; that is, treatment of placenta previa centralis by Cæsarean section. About a year or two ago he expressed his opinion on this subject in a short paper before the County Medical Society; and he remembers, in the discussion of that paper, the consensus of opinion was opposed to Cæsarean section for even placenta previa centralis. Each case, he feels, must be a study in itself. In marginal placenta previa, manual dilatation and podalic version, it seems to him will serve best. In his own experience it had seemed wiser, after performing podalic version, to treat that case as a breech presentation rather than rapidly extract the child. For the majority of cases of placenta previa manual dilatation and podalic version will serve best. He agrees with Dr. Coles in the stand that he takes; it does seem to him that there are a few cases that probably would be better treated by Cæsarean section; and those few cases he would limit to central implantation of the cervix in the primiparous patient and in a patient where there exists a rigid cervix—a cervix that can only be dilated with difficulty. There have been a number of papers written upon the subject pro and con, and the majority, he thinks, have opposed section for the treatment of placenta previa. One criticism has been the fact that in the majority of cases there has existed some hemorrhage before one sees the case. Another criticism is that some cases are already infected. Another is the fact that in many of the cases the pregnancy is not at term and the child will hardly live, even if delivered by Cæsarean section. The course that he believes should be followed in all cases of ante-partum hemorrhage should be with the first hemorrhage to anesthetize the patient and make a careful diagnosis. If the patient

is suffering from a marginal or lateral implantation, manual dilatation and eversion will suffice; if, however, the placenta is centrally implanted and the patient primiparous, the cervix rigid and difficult to dilate, the patient at term or near term, he would feel it his duty, after she has come out of the ether, to place the situation plainly before her and give her the chance of Cæsarean section should she prefer that operation.

Dr. Oliver Hopkinson said that Dr. Krusen must be congratulated upon the happy ending of his case. He believes in placenta previa the lives of the mother and child are antagonistic; trying to save both, you are apt to lose both. He would like to ask the Doctor how he made the diagnosis of central placenta previa, which he thinks can only be made after full dilatation of os. The treatment in cases of the variety described to-night is version followed by slow extraction. He believes it safer to bring down one foot only, giving the uterus time to contract and retract. The great temptation in these cases is to hurry extraction, producing a post-partum hemorrhage, which may seriously jeopardize the life of the mother. In reference to Cæsarean section he thinks its field of usefulness is very limited. With rigid os and mother and fetus in good condition it could be considered, especially if one fears a centrally located placenta.

Dr. L. J. Hammond said his experience in the treatment of post-partum hemorrhage has been rather larger than he expects it will ever be again; since his work nowadays is not so largely obstetrical; but the difficulty he has always experienced has been in the early diagnosis of placenta previa—in this respect fully agreeing with what has been said by Dr. Hopkinson; or at least with him it is extremely difficult, and in a large percentage of the cases it has been impossible for him to say that any given case was one of placenta previa, either centrally or laterally, until after the cervix was dilated sufficiently for him to determine it by digital examination. When he finds he has a condition to deal with of placenta previa he at once anesthetizes the patient and undertakes a rapid dilatation. He has never found any difficulty in getting rapid dilatation, because in every case, to the best of his recollection, that he has ever seen, it has been at full term, the woman having been in labor has consequently lost considerable blood, and through having lost this blood the tissues are readily relaxed, enabling dilatation, not alone of the cervix, but also of the entire birth-tract to be decidedly easy of accomplishing. Before active uterine contractions begin the bleeding can always be controlled by thoroughly tamponing the vagina with sterilized gauze. This, in addition to controlling hemorrhage, stimulates active uterine contractions. So, he has never had any difficulty in this direction, i.e., in the dilatation. If uterine contractions are not strong, he, after securing the feet, brings one foot down as a tampon, after which he contents himself to wait until the cervix is sufficiently dilated to extract the child. He has never, to the best of his recollection, had a fatal termination from placenta previa. He has seen one or possibly two fatal cases when students had been in attendance, the condition not having been recognized sufficiently early. In his own practice he does not remember ever having lost a case, and that has been his method of procedure. Personally, he does not see how it is possible to make a diagnosis weeks or months before the labor begins, unless the cervix be dilated to such an extent as to precipitate labor prematurely.

Dr. Krusen, in closing, said he would like to say one or two words about the case in point. This patient was a very favorable case. She was one of those Irish women, in the habit of having their children easily. The babies had been almost ready to drop out of the birth

canal. The delivery was performed in three or four minutes. The legs could be grasped with the greatest of ease. There was no particular skill required in perfecting version. As to why he is certain this case was one of central implantation—it being suggested by Dr. Hopkinson as possibly an error in diagnosis—the method of making the diagnosis was something like this: In dilating the cervix, the more he dilated the more he found that the orifice was covered with the placenta. He started in with gradual dilatation, getting one finger in early, and later the entire hand and found as he dilated the os, the os was still covered with placental tissue; so he felt confident of his diagnosis. At last he despaired of getting around the edge of the placenta and so perforated it and quickly accomplished the version. In regard to teaching the Cæsarean section as a method for treating placenta previa, he thinks they should be very careful as an obstetrical society. In the hands of such accomplished obstetricians and operators as Dr. Coles, Dr. Boyd, Dr. Hopkinson and others, this is practically a successful method of treatment; but, if they put themselves on record as advocating the treatment of placenta previa by Cæsarean section, they are going to sacrifice not only the lives of the children, but very often the lives of the mothers. When they can have statistics presented showing 107 cases in one series by four practitioners with only one death, it is a question whether they ought to advocate this method ever in the treatment of placenta previa. To go back again, these very gentlemen admit themselves it is impossible to make the diagnosis of a central implantation. If they can show the case is a primiparous woman and has a centrally implanted placenta, then Cæsarean section is indicated; yet, in the next breath they tell us, "You can't tell the variety until labor starts." Now, for the point to which Dr. Boyd called attention, the one point which covers the whole substance of the matter; that is, that each case is a law to itself. One may have a case in the maternity hospital with all the modern appliances; one may have one in a little two-story house, another away off in a farm-house. In each case you must serve the interests of both the child and the mother by using the method best adapted to that particular case and its environment.

Uterine Fibroma Near the Menopause.—This was the subject of Dr. George Erety Shoemaker, who said that the medical heresy is passing away, that fibromas grow less, stop bleeding, or do not develop at the time of the menopause. An experience of many years in dispensary and hospital has failed to show a case. On the contrary, peritonitis, pyosalpinx, pressure on urinary organs, hemorrhage kill or forever impair vitality in many who are waiting for a menopause which never comes. Three more cases illustrate onset of severe symptoms after the age of forty-four years:

Case I.—Widow, aged forty-four years; married ten years; never pregnant. Within three years periods have become almost constant. Last two months in bed from severe hemorrhage, getting worse. Hemoglobin 45 per cent. Tumor choked pelvis, reached three inches above navel. Removed by ligation. Aseptic recovery. A year later reports herself "splendidly well."

Case II.—Single woman, aged forty-seven years. Hemorrhage increasing under her physician's treatment, two years. Now soaks 10 to 12 large napkins per day during long and frequent periods. Dyspnea. Chronic interstitial nephritis. Has had phlebitis in legs and thighs. Weight 215 lbs. Very short. Tumor five inches in diameter wedged in pelvis. Removed by difficult ligation. Aseptic recovery.

Case III.—Widow, aged fifty-one years; three children. Hemorrhage gradually increasing seven years, now almost constant. Fibroma reaching three inches

above navel. Operation by ligation easy. Aseptic recovery.

These cases are part of a consecutive series of 19 hysterectomies at the Presbyterian Hospital without a death; also part of a consecutive series of 60 abdominal operations in my service at the same institution, with one death. That death followed a few hours after operation for intestinal obstruction in a patient who had been vomiting thirteen days before I saw her, and had gangrenous intestine with extensive adhesions. The operations included 1 Porro-Cæsarean section, 14 other hysterectomies, 2 extra-uterine pregnancies, a gall-bladder and two kidney cases. The appendix was removed 20 times, 6 of them as a primary operation. Nineteen cases had salpingitis. Pus was present 18 times at the operation, six of these as true pelvic abscess outside the tubes, and not due to appendicitis. There were two tumors of the ovary, etc. Once only was the abdomen opened to suspend the uterus.

Dr. L. J. Hammond said that the cases reported by Dr. Shoemaker are interesting to the Society, especially to the surgeon; and he is to be especially congratulated upon having had so large a series of cases, with practically no mortality. He knows so well the difficulties one encounters in removal of these fibroids, and in fact, most every intra-abdominal pathologic condition. Every year he finds that his work becomes more difficult, and most every case that comes to him seems to bring additional complications to what they did a few years ago. Just why it is so he does not know, unless it be that the easy cases have all been used up—have all been operated on and cured. Within the past few months he has had a series of the most difficult intra-abdominal cases to operate upon that he has ever before had because of the extensive adhesions, etc., that he has had to deal with. These cases referred to by Dr. Shoemaker as being partly intraligamentous are always very difficult; they are difficult to him because of the great depth that ligatures have to be tied and the hemorrhage that one has to deal with so very often, the result of this, and especially if there be, as there so often is, extensive adhesions. He would like to hear from Dr. Shoemaker as to whether these intraligamentous tumors were extensively adherent and his method of securing the vessels under such conditions.

Dr. Geo. M. Boyd said that in one of the cases that Dr. Shoemaker reported he told them that the tumor completely filled the pelvis. He would like to ask Dr. Shoemaker what operation he resorted to in that case. In his experience those cases have been probably the most difficult to operate upon. The course that he has pursued is to tie down upon one side and, boldly cutting across the cervix, ripping the tumor out, catch the bleeding vessels. To tie down on either side before removing the mass has always been a difficult course for him to pursue.

Dr. Krusen said the thought came to his mind while Dr. Shoemaker was reading his paper about how much more radical operators have become in the treatment of fibroid tumors. There seems to be a tendency in recent medical literature to deal with the degenerative changes in fibroid growths. Formerly many specialists told their patients that if they had small fibroids and were near the menopause, operation was not required; but there have been a number of articles contributed lately, and much work has been done by pathologists showing the frequency of sarcomatous degeneration, and this possibly will lead us to teach in the future that fibroid growths should be removed as soon as recognized, whether they are producing marked symptoms or not.

Dr. Shoemaker in closing said he would say in the cases that have not had inflammatory complications he has not generally had a leucocyte count, as he has never

found anything helpful from it under such conditions; but he always has a hemoglobin estimation. Some of these cases have been reduced to a very low point by hemorrhage. They are obliged to temporarily control hemorrhage while they can bring the hemoglobin up to a reasonably safe point. To do this he uses tight vaginal gauze pack with the patient in the knee-chest posture. Renew every third day. He gives mammary extract, five grains four times a day and keeps them in bed. Ice is put on if there is local peritonitis until the patient is in better shape. As to the method of removal, when the tumor is intraligamentary on both sides, he thinks the best they can do is to go down with forceps and ligatures on the best side, and cut away the tumor as fast as possible, catching the arteries as they jump. That is what happened in this stout woman. There is a little more blood lost that way, but one cannot give tumors which choke the pelvis treatment, which is more satisfactory as far as he can find. He has never felt like going down through the tumor with the uncertainty of being able rapidly to ligate.

Exhibition of Specimen of Fetus Papyraceus.—By Dr. Stricker Coles. For this case he is indebted to Dr. J. H. Spruance, of Wilmington, who also gave him the following history of the patient: The woman was thirty-five years old, she has had three children and three miscarriages; the last miscarriage being two years before this pregnancy. As near as he could count, the patient was advanced three hundred days gestation. The first stage of her labor lasted eight hours, the second stage two hours and the third stage about an hour and fifteen minutes. The placenta and fetus papyraceus was removed by Credé's method. The child was a male weighing eleven pounds and six ounces, was well developed and was in a perfectly normal condition. He found that the specimen which was delivered on January 11 of this year has been placed in a bottle with mouth so small that it cannot be removed. The condition which he wished to especially investigate was whether there was a complete chorionic sac for both the fetus papyraceus and the child. There are always two amniotic sacs, but of course, in many cases there is only one chorion, but this he could not determine. In both cases there is a velamentous attachment of the cord to a single placenta. This is a rarer condition than where there are two separate placentæ. He should say the fetus papyraceus had grown to about the period of three and a half months' gestation before death.

BOOK REVIEWS.

TUMORS—INNOCENT AND MALIGNANT. Their Clinical Characters and Appropriate Treatment. By J. BLAND SUTTON, Surgeon to the Chelsea Hospital for Women; Assistant Surgeon to the Middlesex Hospital, London. Third Edition. W. T. Keener & Co., Chicago.

THERE are certain general characteristics of this type of English book which impress themselves at once upon the American reader. The most pronounced is that the author's standpoint is distinctly a scientific rather than a merely medical one. In an altogether charming way he has contrived so to mass the vast wealth of material under consideration that logical and easily retained deductions are the rule throughout. The book is absolutely free from dogmatism and empiricism. In short, its charm and very great worth lies in the fact that throughout, comparative statements are made. This has been most successfully exemplified in those chapters which deal with congenital deformities, but wherever a prototype of any common tumor exists in

plant life or in the lower animals, the relationship is most graphically carried out. As a consequence, this volume must be of the very utmost value to all teachers of pathology and allied branches. Whatever regrets, if any, the reader may formulate in following these most interesting and instructive pages must center upon the author's methods of treatment. One can be forgiven for wishing that the public might profit by his being willing subsequently to devote his attention more strictly to the elucidation of the pathological problems which are so difficult of solution. In their interpretation he has few, if any, peers.

On points of surgical technic he would appear from the text to have at least a number. The hope might therefore be expressed that the next edition may deal more largely with the comparative pathology of tumors, leaving their treatment to the hands of the ordinary surgeon. The book is probably without a peer from the standpoint of the pathology, etiology, symptomatology, and diagnosis of tumors.

Of very special import in this edition is the chapter bearing on the deciduomata which are provisionally classified with the sarcomata. Cheering also is the rescuing of the harmless myelomata from the "banal society of the sarcomata." Not less progressive and clearly indicative of the stamp of the book is the elimination from its pages of the term "epithelioma." It is replaced by the phrase "squamous, called cancer." It might be fortunate for the student and for us all if a further expurgation should liberate us from the word *cancer* altogether.

The book is attractively made, the print being particularly clean-cut and readable. Its makers are to be congratulated on having turned out a perfect volume.

ORGANIC NERVOUS DISEASES. By M. ALLEN STARR, M.D., Ph.D., LL.D. Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, New York; Consulting Neurologist to the Presbyterian and St. Vincent's Hospitals; St. Mary's Free Hospital for Children and to the New York Eye and Ear Infirmary. Lea Brothers & Co., New York and Philadelphia.

DR. STARR's work comes to the profession with the weight of authority that instantly stamps it as worthy of the fullest consideration and in the present work before us we find one of the most clear and readable textbooks that it has been our fortune to see. Furthermore, a text-book which, from the illustrative point of view, leaves almost nothing to be desired. It is both fully and beautifully illustrated.

Regarding the subject-matter, it may be said that the consideration of neuritis is almost monographic, the author's many studies in this line having placed him in a position of particular prominence. The articles on the muscular atrophy, muscular dystrophy are very full and unusually lucid; while the discussion of injuries of the spinal cord is brief and presents a summary of modern-day knowledge that can hardly be improved upon. As would be expected, the author's consideration of tumors of the brain is especially illuminating. In view of his wide experience, the general conclusions on the unfavorable outcome in the surgical treatment of brain tumors leaves a sense of disappointment of possibilities coming from so high an authority.

The author's very clear and straightforward style renders the work one of special attraction to the student and practitioner. It is clear-cut and direct and the clinical pictures easily recognizable. Treatment is particularly complete and detailed. From every point of view the work is one entitled to more than ordinary commendation.